

Web Browsers: The Best of the Net



November 2008 Volume 21 Number 11 Free

The Computer Paper

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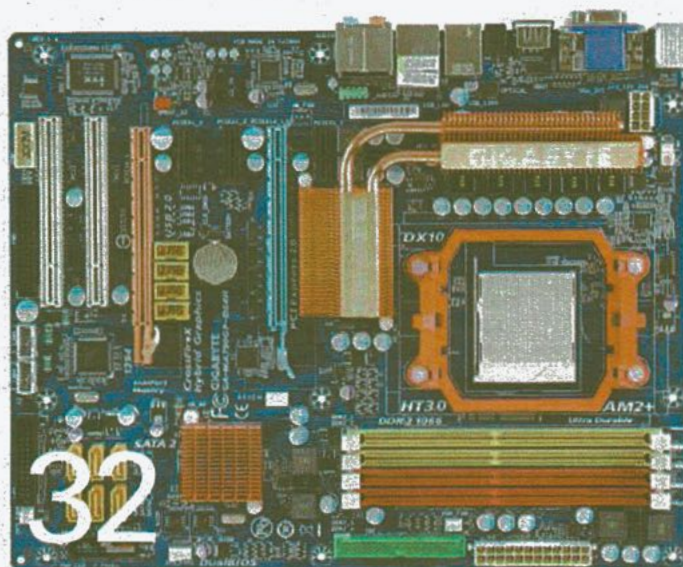
Anitec

**Memory
Express**

MB MicroBytes

EPROM

26



32



34

- 6 **The Feed**
All the latest from hubcanada.com including mobile film festivals, new products and more
- 8 **The Doctor is in**
Your questions answered by the HUB PC Doctor
- 10 **Social Networking**
Wherein the simple act of knowing people becomes a fine art
- 14 **Fun with PowerPoint**
Sick of slideshows? Here's how to create a fun game in PowerPoint
- 15 **Deface Book**
With the Social Net, it's easier than ever to ruin political aspirations
- 16 **Everybody's Got Something to Hide**
Online anonymity: The sanctity of your online information
- 17 **Frame by Frame with the Zi6**
Kodak enters the battle for pocket camcorder supremacy
- 18 **Online Dating**
Looking for love in all the virtual places
- 22 **Facebook Apps: Awesome or Annoying?**
The popular social networking site offers near limitless customizability... for better or worse
- 26 **Building the Ultimate Media PC pt. 1**
Gathering the parts for the 10-foot PC
- 29 **The Online Photo Album**
Finding a needle in the photo sharing haystack
- 30 **In the Lab: Web Browsers**
Browsing for the best of the Net
- 32 **Gigabyte GA-MA790GP-DS4H**
Proving that AMD still has muscle to flex
- 33 **Industry Giant Goes Light-Weight**
Dell's Inspiron Mini 9 marks the company's first foray into netbooks
- 34 **Power Pellets: Top 10 PC Game Studios**
These development companies hold the fragile future of PC gaming in their collective hands
- 38 **The Last Byte**
The Social Net @ work

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Parting is such sweet sorrow. 'Tis better to have loved and lost. Goodbye. Fare thee well. Good day sir... I said good day! A thousand other clichés and ways of saying the same thing.

Long time HUB: The Computer Paper readers will recognize this as another parting editorial. That makes it the second that I've written in the five or so years I've been editor of HUB: The Computer Paper and its previous forms and formats. Last time, I wrote my parting editor's letter while sitting on a plane somewhere over the ocean on my way to Kuala Lumpur, Malaysia, where I was to be editor of a city lifestyle magazine. That turned out to be more

of a sabbatical than a true parting of ways, as this editorial now attests.

But this time it's a little different.

This time, I've accepted a new editor position in Toronto, working with some great editorial and business minds, friends and in some cases, HUB: Digital Living and HUB: The Computer Paper alumni.

The HUB: TCP reigns are being passed to Dorian Nicholson whose byline you will have seen on our website, www.hubcanada.com, and in print within the pages of the magazine you hold in your hands. Dorian will bring a new way of thinking about the magazine and website and I look forward to seeing them both grow and change under his editorship as, I believe, should you. I've genuinely enjoyed working with him over the past several months and he gets my sincere best wishes. So long as he doesn't try to lay claim to the mountains of pens, USB keys, Halo 3 helmet / DVD case holders, Lego Batman figures and various other PR detritus I've accumulated over the years.

Though I'm leaving the HUB: TCP editor's desk, you can't get rid of me quite that easily.

I'll continue to consult with Dorian and with Piccolo Publishing so we don't lose sight of where the magazine came from and where we hope to take it — things I've

learned a lot about in my years at the helm. That said though, my role will be a small one and it's Dorian's baby now. It's in good hands.

But in true narcissistic fashion, I'd like to talk about me some more.

I'll be working with some sharp minds at Tucows, working on a new user-focused website. This new site will see the benefit of the team's collective years of experience and aims to simplify computing for beginner, novice and intermediate computer users; we'll even have something for the more advanced as we leverage Tucows' huge, downloadable software library to help computer users do more in less time. The concept is for "soft, sticky technology content." We soft launch shortly after this issue of HUB: TCP hits the streets. More on that in the weeks to come.

This new role started when former TCP and HUB: Digital Living products editor Sean Carruthers approached me with the details and as I learned more from general manager Andy Walker, it's fair to say I got excited about this new project. We'll be working together closely and I can't wait to start down this new road and see what possibilities it has in store, to say nothing of the chance to work with friends and colleagues I have a lot of respect for.

The kicker is that I'll be working a mere 700m away from the Piccolo Publishing offices (according to Google Maps) in the Liberty Village neighbourhood that's been such a great place for us to work and play. Moving the HUB office to this new locale represented a change of more than just scenery for the HUB team; it was something of a fresh start. So now, while I am looking forward to some new lunch time, work time and bar time conversations with my new colleagues, I can still meet up with my friends at HUB for lunch, coffee or a couple of pints after work.

Though I am certainly excited to start my new project, I'm disappointed I won't be at HUB to see the improvements, the growth and the new ideas that this publication will enjoy from behind the editor's (rather messy) desk. That said, I'm looking forward to seeing what's next for HUB: The Computer Paper and www.hubcanada.com. Both as a bit-part player and — perhaps more importantly — as a reader.

Enjoy the issue,
Andrew Moore-Crispin
Editor-in-Chief



The Feed

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Breaking News:

Game Developers Conference to Hit BC

By Matt Smith

Building on the success of the first ever Vancouver Game Summit in 2007, the Game Developers Conference (GDC) has announced that it will be coming to Vancouver for Digital Week in May of 2009. The Vancouver Game Summit is dedicated to bringing the Canadian sector into the forefront of game development... www.hubcanada.com/feed/489

Newegg Hatches in Canada

By Dorian Nicholson

Good news arrived recently for those looking to purchase computer supplies or equipment online, as a new e-retailer has come up from the United States looking to expand into the Canadian market. After seven years operating solely in the States, Newegg.com will be broadening its horizons with the launch of Newegg.ca... www.hubcanada.com/feed/495

First Ever Mobile Film Festival Scheduled for '09

By Matt Smith

What if you found yourself attending a film festival and taking your seat beside silver screen icons Robert Redford and Isabella Rossellini? And what if Redford or Rossellini were there to judge movies on their mobile phones? Well, that is likely what is going to take place at the inaugural 2009 Global Mobile Film Festival... www.hubcanada.com/feed/492

Canon and Avril Lavigne Team Up

By Kevin Freeman

Canon has officially paired up with Canadian rocker Avril Lavigne in order to sell its Rebel SLR series and the ELPH compact line of point and shoot cameras. Lavigne made a special appearance to kick off the campaign in downtown Toronto on October 20, hoping to prove that Canon cameras are "the best damn thing"... www.hubcanada.com/feed/514

Macleans OnCampus Virtual Fair Debuts

By Matt Smith

Attending a college or university fair in person is time consuming and the crowds and speaker presentations can make the fair overwhelming. But what if you could attend a university fair without ever having to travel there and stand in lineups? This is what Macleans.ca has created Macleans OnCampus Virtual Fair... www.hubcanada.com/feed/509

GSM Association to Make Broadband Ubiquitous

By Dorian Nicholson

The advent of the Internet has made many tasks easy and convenient to perform online, from communications, to research, to banking and even working in many cases. The steadily falling price of Wi-Fi laptops and 3G-enabled phones has helped to make the Internet a necessity, not only for all things, but in all places... www.hubcanada.com/feed/493

Panasonic Sponsors WWF's Arctic Program

By Dorian Nicholson

Melting glaciers, stranded polar bears, increased water levels... Anyone who has seen The Day After Tomorrow or An Inconvenient Truth knows the scenario. That's why the WWF's International Arctic Program is working to combat climate change and save the ice caps. Thanks to Panasonic, the program will be getting some much needed support to implement its four-pronged approach to protecting the environment... www.hubcanada.com/feed/500



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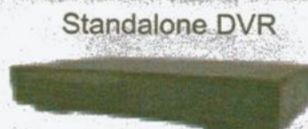


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The Doctor is in

Here's your chance to send your PC woes to our resident Techspert, the HUB PC Doctor

Hi PC Doc,

My computer has an ASUS P4S800-MX SE motherboard and the C: drive connects via IDE. I tried to replace the IDE drive with a SATA drive, but when I try to install Windows XP it does not see the new drive. I have verified that the SATA drive is working. Is there a setting I need to change so XP can find it?

Thanks,
John

Hi John,

The problem you are encountering is due to the fact that the XP installer doesn't have drivers for the hardware that controls the SATA drive. Without these drivers the installer can't "see" the hard drive, thus the installer can't install XP on it. The solution is fairly easy, but will require a floppy drive and a blank floppy disk, so hopefully you have those. First you will need to download the drivers that Windows requires to be able to use the SATA drive. You can get a copy of the drivers at www.tinyurl.com/P4S800. You will want to click the + sign beside the word RAID, and download "SiS RAID Driver Package Version 3.02 for Floppy Disk maker." Once you have downloaded this, put a blank floppy disk in your disk drive and run the program to create a driver disk.

Once you have made the driver disk you can start installing Windows XP. During the first part of the Windows installation some text will appear at the bottom of the screen that says "Press F6 if you need to install a third party SCSI or RAID driver...", press F6 when this appears. The setup program will detect the floppy disk and the driver on it. Choose to install the driver and then continue the installation. Windows XP setup should now detect your hard drive properly.

Dear PC Doctor,

I finally quit procrastinating and recently did a full back up of my C: (Vista boot) drive. The image (about nine GB) was written on three DVDs. All went well with the first two, but during the verification stage of the third, the computer hung. Does this mean the entire back up is toast and I should try to redo it, or is the data from

the first two DVDs recoverable? Is there an easy way to find out what's up? I could live with losing some limited data, but don't want to discover the negative if the time comes. The computer in question is an Acer laptop using an in-house back-up program.

Thanks,
J.V.

J.V.

There are a few different reasons the verification could fail. It is possible that it couldn't access one of the files it wanted to verify because it was being accessed by another program.

The problem with the verification failing is that you can't be sure what files are not recoverable in the event of failure. If the first two DVDs contain the Vista installation and programs you have installed, and the third, and problematic, DVD contains all your irreplaceable documents and pictures... well I'm sure you get the picture.

You can try the backup again, but you risk running into the same scenario. Backing up your data makes sense, but you may want to examine how important it is to capture your entire Windows installation. Windows tends to get slower as you install and remove software. Many Windows users will attest to how much snappier a fresh install of Windows is on the same hardware compared to a one or two year-old installation.

If you wish to have a complete backup of your hard drive, the best way to make one is using a USB hard drive or second hard drive, and some kind of bootable disk imaging software. While an additional hard drive may seem expensive, hard drives are often more reliable than burnable media.

Bootable disk imaging software will make an exact copy of your hard drive, and do so without having to start Windows. This will ensure that everything is captured properly and since the program is on bootable media (like a CD) you can easily restore your Windows installation.

One program that offers the ability to make bootable media is Acronis True Image 11 Home, info available here:

www.acronis.com/homecomputing/products/trueimage/

Once you have an image of your hard drive, you can choose to create a new image whenever you want, and backup important documents to CD/DVD between image creation dates.

Hi Doc

I have a secondary hard drive (older type Maxtor DiamondMax 20 GB) that shows up in device manager as working properly. The problem is that it is not showing up as a second drive in "My Computer." It used to work fine but suddenly disappeared.

I hope you can help me solve this as I had some fairly important things stored on it.

Thanks,
Brian

Hi Brian,

Windows is usually pretty good about keeping track of hard drive letters but given that Windows still sees the device there may be some hope.

Try opening Disk Management by right clicking on "My Computer" and choosing Manage. Along the left hand side of the "Computer Management" window expand the "Storage" category and click on Disk Management. In the top right you should see your disks listed.

Assuming Windows is installed on your C: drive disk 0 is the drive that Windows is probably booting from — it should display information stating the Volume is C: the File System as NTFS or FAT32 and the Status as healthy.

Look for Disk 1, if it displays the disk as healthy and the file system as NTFS or FAT 32 but has no Volume assigned, right click on the volume and choose Change Drive Letter and Paths and select a drive letter.

If the file system is unknown or unrecognized and the data is important you should take the hard drive to a data recovery company. Be aware though that this can be an expensive solution.

Simon Bolduc is the HUB PC Doctor.

Questions, comments and queries can be sent to pcdoc@ppublishing.ca

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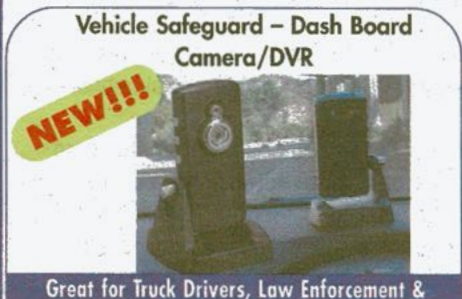
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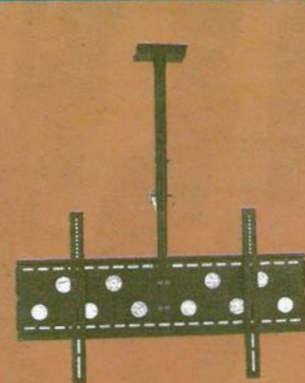


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Social Networking

Wherein the simple act of knowing people becomes fine art

According to Internet research firm Alexa.com, social networking goliath Facebook is the world's fifth most popular website. Video-sharing service YouTube sits two spots ahead in third, and Facebook competitor MySpace resides comfortably in seventh. In Canada, Facebook ranks even higher, at number two, while YouTube and MySpace are fifth and fourteenth respectively. What can we glean from all this? We can say that people really, really enjoy using the Internet as a conduit for human interaction.

Considering that the Internet is, ultimately, all about people and communication, one might think that social networking has been part of the landscape since the very beginning. And indeed it has. In fact, both the urge and the facilities to network socially via linked computers existed even before the Internet became a publicly available and publicly accepted entity.

Anyone old enough to remember the early days of the personal computer (hint: think Rubik's Cubes and non-ironic mullets) will likely also remember those first few primitive PC-to-PC societal links. CompuServe, which has since morphed into an Internet service provider of some note, was one. Though it began life in the pre-PC days of the 1970s as a mainframe computer communication solution for the business world, by the late 1980s CompuServe had expanded into the public domain as a hub of sorts for the growing legion of PC proponents and enthusiasts.

You are not alone

CompuServe allowed members to share files and access news and events, but it also offered something far better — interaction. Not only could members send messages to one another via a newfangled technology called e-mail (the concept of e-mail wasn't exactly newfangled, though widespread public access to it was), but they could also communicate en masse via CompuServe's discussion forums. Numbering in the hundreds and covering oodles of topics, CompuServe's forums proved tremendously popular and paved the way for the modern iterations we know today.

More old school computer user interplay could be found in the form of the "BBS" (Bulletin Board System). Often more local in nature than the CompuServes of the

world, BBSes were usually run by hobbyists who carefully nurtured the social aspects and interest-specific nature of their projects and even arranged for in-person meet-and-greets between members. It was, after all, darned exciting in the early and somewhat isolated days of the PC to know there were other computer fanatics out there who shared the same passions as you.

Soon, commercial online services such as AOL (America Online) grew to prominence, essentially offering most of the features and capabilities the Internet would eventually bring, all within a self-contained but heavily-monitored format. AOL in particular is noteworthy for the member-created communities it encouraged. If there is a true precursor to today's social networking sites, it was likely spawned under the AOL umbrella.

But everything changed as the 1990s marched on. The Internet went mainstream. Personal computers grew from a quirky luxury to a necessity. And social networking became an entity unto itself.

It's debatable which site can lay claim to being the first, though Classmates.com certainly fulfilled some of the modern definition of a social networking site when it launched in 1995. Still, it was primarily a "Who went to my school?" service until much later in its history. Early users could not, for example, create profiles. Nor could they really break free from the site's virtual reunion philosophy. Still, Classmates.com has survived — and at times thrived — to this very day.

Kevin Bacon: Leader of the revolution

The same cannot be said for the site that's most often acknowledged as the first to deliver all the parameters of true social networking. Based on the six degrees of separation theory that asserts no person is separated by more than six degrees from another, SixDegrees.com was born in 1997. It allowed members to create profiles, invite friends, organize groups, and surf other profiles. And of course, it asked its user base to continually test the six degree concept by encouraging them to bring more people into the fold.

As time went on, even the site's organizers got in on the act by trying, via virtually



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any means, to increase membership. The unfortunate result? A frightfully loose association of computer users and numerous complaints of spam-filled membership drives. SixDegrees.com eventually closed its doors just after the turn of the millennium, thus proving the old axiom that bigger is not always better.

But the stage had been set. By the early years of this decade, a wide variety of social networking websites had appeared, each trying to capture the imaginations of potential members. Some, such as Epinions.com, established in 1999, kept the social interactivity in the background in favor of consumer information. Others, such as AsianAvenue.com (1997 to date) and BlackPlanet.com (1999 to date), targeted specific demographics. And we won't even get into the phenomena of online dating (chronicled elsewhere in this issue) except to say that it had become a viable entity long before the debut of the first commercial matchmaking services.

In need of a friend?

Nevertheless, it was with the 2002 launch of Friendster (www.friendster.com) that the template for today's social networking website became firmly established. Like SixDegrees.com, Friendster made use of a degree of separation routine, but it also promoted the idea that a rich online community can exist only between people who truly have common bonds. An interface that shared many of the same traits one would find at an online dating site certainly didn't seem to hurt.

The concept worked, and just a year after it began, Friendster boasted more than three million registered users. Though the service has since seen its fair share of technical difficulties and a drop in its North American fortunes, it remains a huge force in Asia and, curiously, a near-necessity in the Philippines.

In 2003, social networking got serious with the introduction of LinkedIn (www.linkedin.com). Designed as a resource for businesspeople to maintain and append a list of trusted contacts, make new connections and network amongst themselves, LinkedIn resonated well out of the chute and today has more than 24 million registered users.

An even greater success story can be found in the form of MySpace (www.myspace.com). Also launched in 2003, MySpace replicated many of Friendster's most popular features and capitalized on its shortcomings through a

campaign designed to seduce alienated Friendster members. Strong with the much-cherished young adult demographic and very friendly to musical artists and bands, MySpace sat alone atop the social networking throne until unseated by upstart Facebook earlier this year.

Why Facebook?

Indeed, a big reason Facebook has become so incredibly popular is its presence in countries such as Canada. While MySpace maintains its lead in the United States, it's a completely different story north of the border. Why? Explanations abound, but it likely boils down to a phenomenon known as the "tipping point." In simple terms, a tipping point occurs when "the momentum for change becomes unstoppable." It seems that here in the true north strong and free, Facebook — either through its interface, its ease of use, its features, or something as basic as its name — gained popularity so quickly that people interested in social networking couldn't help but join its ranks. Regardless, it's currently the place to be seen in the Canadian social networking world.

But will it still be the place this time next year? Or the year after that? Not if the folks running Twitter (twitter.com) have their say. Not content with being a typical social networking service, Twitter adds blogging to the equation and asks its users to answer the simple question, "What are you doing?" That it already sports over two million registered accounts and a separate version designed for the Japanese market bodes well for its future.

Of course, where there's a Twitter, there's bound to be copycats. And to date, the most promising of these is Finnish-founded Jaiku (www.jaiku.com). What does Jaiku have that Twitter doesn't? It was purchased this time last year by Google. 'Nuff said.

There are dozens and perhaps hundreds of other social networking concerns that, at one time or another, believed their concept was the way of the future. Some still exist today, but many more have fallen by the wayside. And so it goes in the online world. One thing is certain: this battle is just heating up.

By Gord Goble



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In the middle of last month, Sony announced the release of a new package deal for the PSP, a family-oriented bundle that would include Ratchet & Clank: Size Matters, as well as a voucher to download another title from the Playstation Store. The PSP included is also an updated model, the PSP 3000, which features glare reduction...

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Fun with PowerPoint

Sick of slideshows? Here's how to create a fun game in PowerPoint

Applications like PowerPoint aren't always all about serious presentations. You can easily put your PowerPoint skills to work and use the program to create fun games that anyone can play. This month we have a small game for you to make. You'll use a range of PowerPoint features that you'd use when creating a presentation but this time the purpose will be entertainment and not work.

In creating this game you'll see how to create random numbers and then use the number to go to a specific slide in your show. You'll see how to write a simple macro and how to attach it to an image. You'll also see how creating a slide show that has no transitions and a single background colour looks more like a regular program and less like a PowerPoint slideshow.

Getting started

The PowerPoint game needs to be static so it looks more like a program with changing elements than a slide show. To create this effect, start with a new presentation and choose View > Master > Slide Master. Set the background color to a neutral dark color by choosing Format > Background and select the colour to use. Remove both text placeholders on the slide and the footer boxes, add a new text box and place the page title into it. Ours reads "Throw the dice & play the game."

Choose Insert > Picture > Clip Art and locate and add six images of boxes or bags onto the slide. These are the images the user will see when they first launch the application. Locate an image of someone throwing dice. This image came from the Microsoft Office Clip Art gallery online. While the animated GIF won't play while you're building the slideshow it will play when you run the show later on.

To make the dice image do something you will need a Visual Basic macro. To create your macro choose Tools > Macro > Visual Basic Editor and choose Insert > Module. Type this code into the module window:

```
Private Declare Sub Sleep Lib "kernel32" (ByVal dwMilliseconds As Long)
```

```
Sub rollDice()  
ActivePresentation.SlideShowWindow.View.GotoSlide (1)  
Dim MyValue  
Randomize  
Sleep 1000  
Beep  
MyValue = Int((6 * Rnd) + 2)  
With SlideShowWindows(1).View  
    .GotoSlide MyValue  
End With  
End Sub
```

When you are done, choose File > Close and return to Microsoft PowerPoint. This macro uses a random number routine to return a value between two and seven. Ultimately your slideshow will have seven slides and this macro will display any one of the slides when the appropriate dice number is rolled.

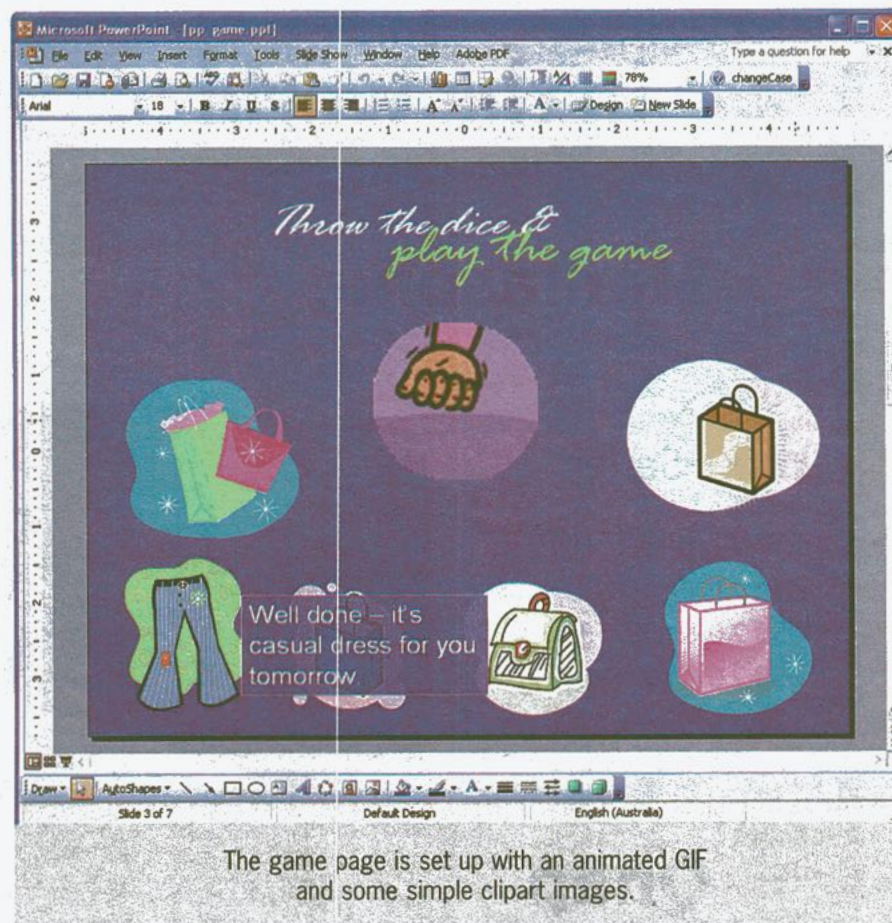
To assign the macro to the dice image, select the image on the slide master, right click it and choose Action Settings. Click the Mouse Click tab, click the Run Macro option and, from the dropdown list, choose rollDice and click OK. You can add a sound to the action by downloading a sound, saving it to disk and adding it to the action in the Play Sound area.

Creating the slides

Once you have added the macro action to your image click the Close Master View button to return to editing your slide. Remove the text placeholders on the slide and then duplicate it by choosing Insert > Duplicate Slide. Repeat five more times until you have seven slides in total.

Slide 1 appears when the presentation is run so you don't need to do anything to this slide. Slide 2 is the equivalent of throwing a one on the die, Slide 3 is equivalent to throwing a two and so on. You now need to configure each of these slides to show the "prize" that you win if you get that number.

Click slide 2 and create a filled rectangle using the rectangle tool from the drawing toolbar and drag it over the first container to hide it. Now locate and add a picture to the slide that represents the win or lose for that roll of the dice. For example, for a prize of casual dress tomorrow you might use an image of some casual clothing.



The game page is set up with an animated GIF and some simple clipart images.

Add a textbox to the slide and type some text explaining the prize.

Repeat this for each of the other slides. For each slide you will want to create a filled rectangle over one of the images on the slide and then add an image representing the prize and the text that describes it. One of the six images needs to be covered up on each of the slides.

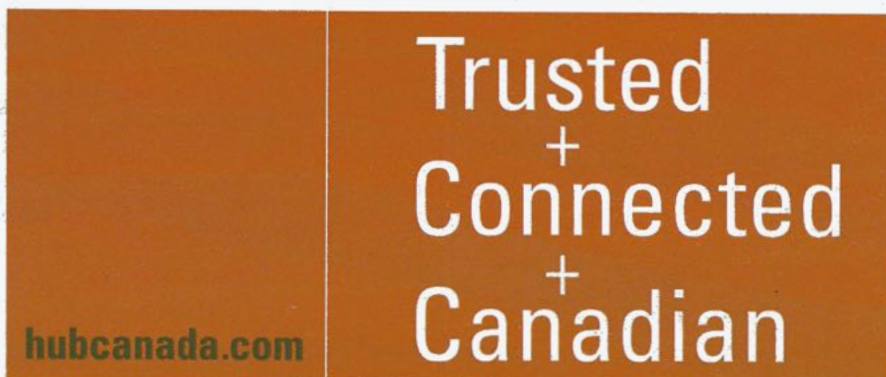
When you are done, save your PowerPoint file and you're now ready to test it. To do this choose Slideshow > View Show and click the dice to start the game. Every time you click the dice image a different prize will display.

By default PowerPoint is set to prevent macros from running and you may need to alter your macro security level for this application to work. To do this, choose Tools > Macro > Security and set the level to medium, save your file, close it and exit PowerPoint. Restart PowerPoint and reload the application to test it.

Applying the techniques

The macro in this game can be used in a regular PowerPoint presentation to take you to a random slide. You could use it to create a test that plays differently every time the test is run. Using a slideshow that has essentially the same look for every slide and no inter-slide transitions creates an application that looks more like a program than a PowerPoint slideshow. Here too, you've seen how to use a slide master to configure the look of every slide in the presentation without having to do it manually each time.

By Helen Bradley



Deface Book

With the Social Net, it's easier than ever to ruin political aspirations

In the bad old days of the web, you had to get your HTML manual out, pay for hosting, buy your domain and then phone all your friends to tell them about your greatest achievement ever... making your very own vanity site.

Yep, truth in advertising, that's what a social networking presence was called back then. It was actually something to be proud of as it took a fair amount of skill and some money to make one, never mind that people could give a rat's rear-end about what was on it, it was cool because it was there and people could visit.

Things changed with the advent of GeoCities, Angelfire and Tripod who offered free web hosting. Vanity got a lot cheaper and more people made their own websites but you still had to know HTML, or at least how to use FrontPage or something like it. Skills were necessary but money wasn't.

However, having a personal homepage was starting to be a little passé by then and you really had to work harder to make a site that anybody would bother to visit. Not to mention the annoying onslaught of pop-up ads visitors had to endure. Maybe a funny picture would work in lieu of the standard portrait to pique interest? Embarrassing office party photos possibly? At

least you would have some time to reflect on whether it was really a good idea to post the picture of your boss hitting on Julie in accounting while designing that page update.

The ultimate weapon

Now we have Facebook and MySpace. No money, no knowledge nor really any time needed. You just sign up and compete for fame and "friends." It has never been easier to prematurely end your political career, lose your job or embarrass your family for generations to come.

Imagine if a young George Bush had had his college high-jinx recorded during the late sixties at Yale. Think Animal House with free love piled on. Sure, he still would have been installed as leader but it might have taken a tiny bit more cognitive dissonance or even a televangelist style request for forgiveness.

Harper, of course, would have been wearing the same blue sweater vest he wears now.

Also, you should be aware that some potential employers will look up your page and see who you hang out with and what you say. One youthful indiscretion on your part, or by any of your friends for that matter, and it goes on your permanent record.

And with Facebook, you have to actually contact them to have your profile permanently deleted.

A vacuum of information


In any case, once something's out there, it's out there. All of your friends and acquaintances are recorded making them your "known associates." I don't know about you, but I don't want to be associated with any group that would have me as a member. Also, if we ever enter a time of political instability, this could be a killer.

Speaking of which, Fox Interactive Media owns MySpace and one of the directors of Facebook is a libertarian activist. Um, yeah, read those user agreements with a lawyer friend and realize that your info is subject to U.S. Homeland Security laws.

Further, you have to ask yourself what you want strangers to know about you, or why you want them to know anything for that matter? Deep question. Such is the price of vanity.

Still, it's a good way to get back in touch with old friends, but even then, do you want relationship George meeting friendship George? Worlds collide, Jerry, worlds collide.

By Andrew Carruthers



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The collage features five optical storage products from RiDATA. At the top left is a DVD-RW disc with a green and gold design. To its right is a DVD-R disc with a blue and green design, labeled '8x' and 'DVD-R'. Below the DVD-RW disc is another DVD-R disc with a purple and gold design. To the right of this is a RiDATA MicroSD Memory Card in its packaging, which is blue and white and features a 'Highlight Series' label. At the bottom is a RiDATA Secure Digital card in its packaging, which is white and yellow and features a 'Secure Digital' label and a cartoon character.

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By Ray Richards

Frame by Frame With the Zi6

Kodak enters the battle for pocket camcorder supremacy

Zi6

Kodak \$179.99 www.kodak.com

Dimensions: 64 x 114 x 23.5mm (WxHxD) 107g

Pros:

Portable, HD-quality videos

Still photo mode

Easy connection with USB arm or video cables

Cons:

Somewhat bulky for its class

More expensive than most

SD card necessary for any real use

The newest entry into the field of pocket-sized video recorders is the Kodak Zi6, a AA-powered, feature-rich camera with the ability to take still shots, macro video and photo, and records HD in two different quality settings, or in web ready VGA.

Breaking into the video recording category occupied by PureDigital's Flip series of video cameras and Creative's Vado camcorder (reviewed in HUB July '08 and September '08 respectively) means that Kodak had to do something different with their product to separate the Zi6 from its competitors. While there are some similarities, such as the retracting USB arm and small, portable design, even before opening the box there are some obvious differences.

The first and arguably most notable feature of the Kodak Zi6 is the fact that it records in HD at 720p, at either 30 or 60 fps. This feature puts this camcorder's video quality way ahead of the competition, but that's not to say that the extra clarity doesn't come at a price.

For one thing, the base cost of the Zi6 is almost 200 bucks. Sure, it comes with some nice accessories — two Kodak AA NiMH batteries, a charger that is capable of charging both double and triple-As, a carrying case, wrist strap, and both HD and

AV connecting cables for direct connection with TVs — but that doesn't change the fact that there are cheaper alternatives for the YouTube, video-sharing crowd.

And for another thing, the device only has a miniscule 128 MB of internal memory, of which barely over 30 is usable. In the highest-quality HD recording mode, that equals out to about 25 seconds of footage before an angry-looking red exclamation mark pops up in the bottom-right corner and prevents you from further recording.

The video is extremely clear in HD, and even the VGA mode isn't too bad considering it's meant for easy sharing and Internet posting. The audio is pretty good even when played on the Zi6, and the playback controls on the unit aren't bad either. During playback users have the ability to fast-forward and rewind at speeds of up to 16x as well as pause and control volume.

The camcorder is also capable of taking still shots at 3 MP quality, which, while not the best, is something that the Flip Ultra was incapable of. Given that the Zi6 can take videos — in HD quality, no less — not being able to take pictures would be difficult to understand.

The software that comes with the Zi6 is quite good, allowing for some basic editing features like cutting from beginning or end, eliminating red eye, adding dynamic lighting, or blending videos, and uploading to YouTube is simple and efficient so long as you have an existing account.

Overall, I would say that the Zi6 offers the most features of the pocket camcorders to be released so far, with a wide range of abilities and an easy-to-use interface. The fact that the "optional" SD slot offers expandable memory is more good than bad, and isn't much different from most digital cameras nowadays where a memory card or stick is almost mandatory.

By Dorian Nicholson

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Online Dating

Looking for love in all the virtual places

Who among us can honestly say they envision the conclusion of a relationship when they embark into one? While the joy of discovery is still so fresh, when the hours between each date seem to stretch into days, when that chemical connection is so strong that every shared experience throws you into a state of euphoria, how can you possibly think of that time when you might separate... forever?

Yet the statistics are far from upbeat. Give or take a few percentage points, one of every two marriages in Canada will end prematurely. So while it may be true that nobody gets married to get divorced, half of us do end up that way, against our best efforts.

This may not be particularly problematic for younger guys and gals, who gravitate in circles where the majority of their friends and associates are still single, and are fairly likely to spend a chunk of their social time in bars and clubs that cater to the under-30 crowd. But what about those of us over the age of 30? Or 40? Or 50, for that matter? What do we do when we're on the prowl?

We could hang out with our married friends, hoping against hope they might finally invite some other single person along, but more likely will end up watching rented movies and playing boring board games.

We could hit the neighbourhood pub, where we might, if we're really lucky, find that perfect match amongst the usual gaggle of ne'er-do-wells and town drunks. Heck, we could even become a regular at the local produce store, pathetically hoping we might inadvertently touch hands with our dream spouse whilst sorting through the over-ripe tomatoes.

A brave new world

Or we could go online. Once regarded as a last resort for total losers fearful of showing their face in the real world, online dating sites have come a long way. Indeed, when you consider the alternatives and the other potential scenarios (see above), online dating may be one of the best options today — especially for those too old for nightclubs but far too young to give up on love.

Before you mock the idea entirely, consider the following:

Online dating goes a long way toward reducing geographical barriers. In the "real" world, chances are your sphere of interaction extends just a few miles. Online, you can meet someone from thirty or forty miles away just as easily as people from your own neighbourhood. Granted, you may want to think twice before responding to that suspiciously lusty note from a gorgeous 25-year-old "supermodel" situated in some unpronounceable third-world country, but it generally goes without saying that your chances of meeting the right person are that much more enhanced when your horizons are broadened.

When you meet someone online, you'll have at least some idea in advance as to what makes them tick. Are they a soft-hearted romantic or a party animal? Do they enjoy extreme sports or extreme antique hunting? Are they happy and confident with

themselves, or do they still carry a crazed obsession for their most recent partner that manifests itself in daily stalking rituals?

Unlike hockey rink hot dogs, online dating sites theoretically contain no filler. Everyone who signs up is there for one reason — to meet Mr. or Ms. Right. The same cannot be said for the shopping mall. Or the office. Or even the local watering hole, where you're more apt to find three-sheets-to-the-wind Karaoke hacks than a future wife or husband.

For most of us, it's simply easier to take that tentative first step, concoct a good opening line, and deal with possible rejection when we're not in a face-to-face situation. Furthermore, unless you're one of those lucky guys or gals who simply ooze self-confidence, you'll likely find it easier to approach really gorgeous people online than on the street. There's just something about the buffer of the Internet that makes the whole process less intimidating.

Going fishin'

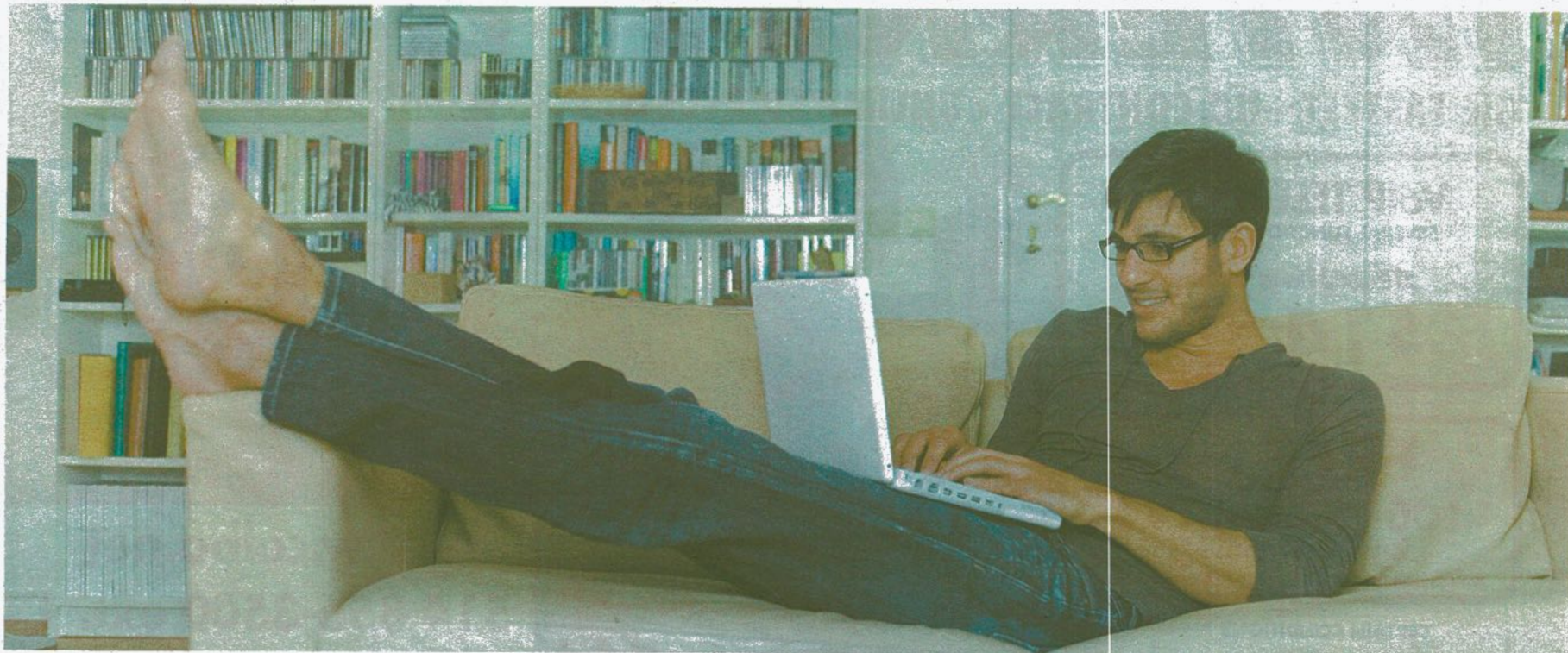
Of course, online dating is not without its pitfalls, arguably the most important being the simple yet undeniable fact that not all sites are equal. Indeed, while some online dating services deliver tremendous bang for the buck and are totally and completely above reproach, others are... substantially less impressive.

Certainly there's no shortage of alternatives. One of the most popular choices in this country is eHarmony (www.eharmony.ca), a matchmaking service that's both comparatively pricey and comparatively strict. It does not cater to gay individuals, it won't help you if you're merely "separated" (you must be legally single) and it discourages open, unsolicited communication between its members. Instead, eHarmony uses a series of parameters and personality traits to match you with others, then passes the results on to you and allows interaction from there.

Substantially different is Plenty of Fish (www.plentyoffish.com). The most important distinction between Plenty of Fish and eHarmony is price — the former is completely free. And while that's great news for those of us who don't believe in sinking megadollars into the search for our perfect mate, the flipside is that a freebie site encourages those who might... exaggerate the truth. Still, a no-charge service that promotes freedom of interaction between members, doesn't restrict on the basis of sexual preference or marital status, and is based right here in Canada (Vancouver, to be exact) is a pretty good thing.

Lavalife (www.lavalife.com) is a sophisticated site that offers its members perks such as integrated instant messaging, webcam support, a variety of discussion forums, and three distinct "communities" (Dating, Relationship, and Intimate). Lavalife charges for its service, but those charges aren't as steep as some other sites and they do serve to reduce the number of insincere participants.

Billing itself as Canada's Speed Dating Service, 25dates.com (www.25dates.com) intends to bring you together for a series of three-minute encounters with up to



twenty-five potential suitors. The downside? If twenty-five consecutive three-minute dates doesn't faze you, maybe geographical limitations will. After all, what are the chances of even finding twenty-five other singles in your age bracket when you live in Milk River, Alberta?

If, conversely, you reside in the city and have money to burn, It's Just Lunch (www.itsjustlunch.com) will not only act as a matchmaking service, but also set you and your date up at a top-notch restaurant — thus eliminating safety concerns.

Prepare thyself

There are, literally, dozens more online dating sites from which to choose. Unfortunately, many of them are not without issues. Some, for example, have been known to send false, inappropriate, or geographically ridiculous matchups.

The key is to know in advance what you're getting into. Check the membership numbers — particularly "active" members — and see how many are situated within a reasonable distance. Decide if you prefer sites that offer unfettered e-mail and chat capabilities, and act accordingly. Google your favourite sites for professional reviews and user opinions.

Look carefully at the membership small print and make sure you're not on the hook for more money than you can afford or a longer time period than you want. If possible, sign up for a freebie trial or a reduced-privilege membership and look carefully at both the demographics and the quality of the members.

Ultimately, weed out the sites that don't work for you and experiment with a trial membership at the sites you like. It won't take long to recognize which service you most enjoy frequenting.

But even the best site is no guarantee of a successful dating experience. Your humble writer has dedicated portions of 2008, um... researching various sites and delving into the world of online dating after spending much of his adult life in a long-term relationship, and can attest to the uncertainty of the process.

Why, it seems like only yesterday when the rusting hulk of a 1988 Nissan staggered into his driveway. Cringing at the site of the smoldering monstrosity but thankful its engine died before it could explode, he bounced out the front door and down the

steps in the hopes that a more agreeable vision awaited in the driver's seat. Alas, those hopes were trampled faster than a baby in a mosh pit.

It wasn't just the circa-1970s Harley tank top. Or the tattoos. Or the pronounced belly, swinging to and fro below the beltline. It wasn't the bigoted attitude that immediately conjured up memories of Archie Bunker at his worst or even that she'd stretched the truth substantially about her age.

No, it wasn't any of the above. It was that this woman had somehow made it through the screening procedure. She'd painted a picture of sweetness and femininity in her online bio. She'd peppered her profile with ancient photographs that gave no indication of her current condition. And during each and every phone call, she'd spoken without the grating ignorance that now seemed so obvious.

Laugh in the face of danger

Ultimately, she and her beastly automobile would disappear into the night, and no real harm was done. Yet the lesson had been learned. Trust no one. It's a lesson that everyone considering the online dating world should remember.

Don't, for example, rely on e-mails and photos as reliable precursors to a first date. Instead, get the phone number of your prospective suitor and really talk it up. Are they bitter over past romances? Are they plagued by verbal quirks that'll drive you crazy over the long haul? Do they like to laugh, or are they too serious for their own good?

Ask them a few hard-hitting questions — they shouldn't mind at all if they have nothing to hide. And, if you're pursuing a relationship rather than a one-off rendezvous, keep the lines of communication open for a week or more before meeting to determine if the object of your desire is just as interested in a future.

Pick a busy, public location for that first get-together, take a cell phone along with you, and let a few friends know where you're going — and whom you're meeting. And when you arrive, try your best to relax and have fun. Remember, one date isn't really a big deal in the grand scheme of things. There's always plenty more fish in the online dating sea.

By Gord Goble

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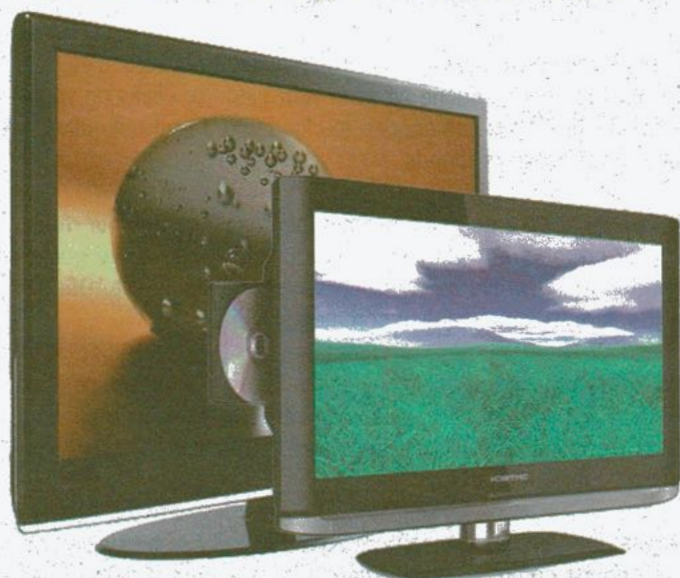
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Facebook Apps: Awesome or Annoying?

The popular social networking site offers near limitless customizability... for better or worse

Facebook fans know exactly what to expect when they visit their profile page each day: public wall posts, private messages, and, most of all, invitations to install yet another Facebook add-on, those free third-party applications designed to "enhance" your online experience.

There are literally thousands of applications available and we all have that one friend who has chosen to install each one.

Yes, it seems we're not content to merely let the world know what we're doing at that precise moment ("Marc is eating a sandwich"), catching up with high school flames or showing off photos of our kids to the world — Facebook is now the gateway to movie trivia, vampire bites, booze mail, horoscopes, or a SuperPoke if that doesn't sound too painful for you.

Apply yourself

In all fairness, some of these Facebook applications are pretty cool, such as Where I've Been. This application places a world map on your Facebook profile page so you can show others where you've been, where you've lived or where you want to go to (and with the latter, you might just get a newfound Facebook friend to join you). Similarly, TripAdvisor offers pushpin maps for Facebook users.

We also like iLike, a social music application that lets you share and discover music with other Facebook users: share iTunes playlists with friends, access free MP3s to match your tastes or sign up for concert notifications when your favourite artists are playing near you.

And then there's Video and Super Wall, both of which let you upload videos (including YouTube clips) or get more out of your photos by creating collages and slideshows or by drawing over pictures. According to Facebook, Rock You's Super Wall has more than 18 million active users each month, making it one of the most used apps of all.

Oh, and when you're bored to tears, MindJolt's nearly 500 playable games can really help make the time fly by with its collection of online puzzle, arcade and strategy diversions.

But for every one of these handy or fun apps, there are 20 annoying ones like Pet Sabotage, so you can hurt a friend's virtual pet; Moods, where emoticons show other Facebook users how you're feeling at that time (like, who cares?); Pig's Milk ("mad experiments and moments of reflection") and the self-explanatory Food Fight! application. Sigh.

Facebook is fun folks, but remember: less is more!

Facebook security and safety tips

On a related note, a recent report published by the Better Business Bureau of British Columbia says young people are exposing themselves to identity theft by posting personal information on the Internet, especially on social networking sites such as Facebook.

If you (or your kids or younger siblings) are spending time on Facebook — and many millions of Canadians are — then take heed to the following tips on better protecting yourself or loved ones from online scams and other dangers.

1. Never give out personal info: Posting your name on your Facebook profile page is perfectly reasonable, but you need not list your address, birth date, phone number, work details or any other private information. Also, be cautious about what kinds of photos you're posting in case they reveal personal info.
2. Close your network: Rather than making your profile public to everyone — meaning all your details pop up if someone types in your name or clicks on your name on someone else's site — you can choose to close your Facebook network to everyone except for a small group of friends.
3. Watch your wall: You might do a good job keeping personal info off your main page but your friends or coworkers might blow it. For example, say you're going on vacation and a dim-witted friend writes on your public wall something like "Dude, have fun in Mexico!" Be sure to remove these comments ASAP.
4. Be wary of forms: When you sign up for many of the third-party Facebook apps you might be asked to fill out info, so companies can collect names for marketing purposes. Don't fill out every field if you don't feel comfortable about it, such as address, phone number, e-mail, and so on.
5. Use e-mail messages: Remember, someone's Facebook wall can be viewed by anyone, so before you post a comment or question to it, ask yourself if it's better as a private e-mail, which only the Facebook user can read.

By Marc Saltzman



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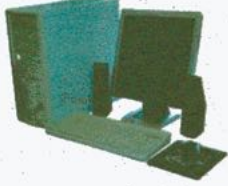
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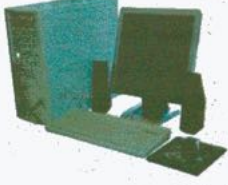
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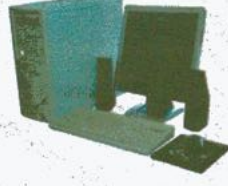
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Asus M3A, Socket AM2, AMD 770 (ATX) \$89.99
Asus M3A78-EM, Socket AM2, AMD 780G (mATX) \$84.99
Asus M3A78-EM, Socket AM2, AMD 780G (mATX) \$99.99
Asus M3A78, Socket AM2, AMD 770 (ATX) \$99.99
Asus M3A78-EMH, Socket AM2, AMD 780G (mATX) \$109.99
Asus M3N-HT Deluxe/Mempipe, Socket AM2, n780a SLI (ATX) \$284.99
Asus M3N78-VM, Socket AM2, n8200 (mATX) \$94.99
Asus M3N78-Pro, Socket AM2, n8300 (ATX) \$129.99
ECS A740GM-M (V1.0), Socket AM2 (mATX) w/ Video, Sound & Lan \$64.99
ECS Gost 3- w/ 3000+ (mATX) w/ Video, Sound & Lan \$69.99
Motherboards for Intel CPUs
Asrock P4H55M/ASR, 5478, (mATX) w/ Video, Sound & Lan \$79.99
Asrock P437WINS2600, LGAT75, Intel P43 (ATX) PCI-Express \$109.99
Asus P5E-VM HDMI, LGAT75, Intel G35 (mATX) PCI-Express \$149.99
Asus P5B3 Premium, LGAT75, Intel X48 (ATX) PCI-Express w/WiFi \$169.99
Asus P5GC-MX/1333, LGAT75, Intel 954GC Chipset (mATX) \$59.99
Asus M3PL-CLM, LGAT75, Intel G31 (mATX) PCI-Express \$69.99
Asus P5N-E SLI, LGAT75, nForce 650i SLI (ATX) PCI-Express \$124.99
Asus P5N-EM HDMI, LGAT75, nForce 630i (mATX) PCI-Express \$89.99
Asus P5N-MX, LGAT75, nForce 680i (mATX) PCI-Express \$64.99
Asus P5Q, LGAT75, Intel P45 (ATX) PCI-Express \$144.99
Asus P5QC, LGAT75, Intel P45 (ATX) PCI-Express \$169.99
Asus P5Q-E, LGAT75, Intel P45 (ATX) PCI-Express \$174.99
Asus P5Q Deluxe, LGAT75, Intel P45 (ATX) PCI-Express \$229.99
Asus P5Q3 Deluxe, LGAT75, Intel P45 (ATX) PCI-Express w/ WiFi \$254.99
Asus P5SD2-VM, LGAT75, S1S 672 (mATX) PCI-Express \$59.99
Asus Rampage Formula, LGAT75, x48 (ATX) PCI-Express \$149.99
Asus Striker II, LGAT75, 1780 (ATX) PCI-Express \$149.99
ECS 945GCT-M/1333 v3, Socket 775 (mATX) w/ Video, Sound & Lan \$54.99
Full List of Motherboards Available Online

Video Cards

AGP Videocards
Asus AH2600P/HTDP w/ 512MB (AGP) Video Out \$99.99
Asus AH3650 Silent/HTD w/ 512MB (AGP) Video Out \$114.99
EVGA GeForce 6200 w/ 256MB (AGP) Video Out \$44.99
Sapphire Radeon X2600Pro w/ 512MB (AGP) Video Out \$99.99
Sapphire Radeon X2600XT w/ 256MB (AGP) Video Out \$109.99
Sapphire Radeon HD3650 w/ 512MB (AGP) Video Out \$144.99
PCI Express Videocards
Asus Extreme AH4670/DI w/ 512MB (PCI-E) \$104.99
Asus Extreme AH4850 TOP/HTD w/ 512MB (PCI-E) \$214.99
Asus Extreme AH4850/HTD w/ 1GB (PCI-E) \$244.99
Asus Extreme AH4870/HTD w/ 512MB (PCI-E) \$329.99
Asus Extreme AH4870/HTD w/ 1GB (PCI-E) \$344.99
Asus Extreme AH4870X2/HTD w/ 2GB (PCI-E) \$624.99
Asus Extreme DN4200LE TCG/HTD w/ 512MB (PCI-E) \$44.99
Asus Extreme EN7300GT/HTD Silent w/ 512MB (PCI-E) \$59.99
Asus Extreme EN8500GT Silent HG w/ 512MB (PCI-E) \$69.99
Asus Extreme EN8600GT Silent HTDP w/ 512MB (PCI-E) \$94.99
Asus Extreme EN9400GT/HTP w/ 1GB (PCI-E) \$94.99
Asus Extreme EN9600GT Silent HTD w/ 512MB (PCI-E) \$149.99
Asus Extreme EN9600GT HB/HTD w/ 512MB (PCI-E) \$159.99
Asus Extreme EN9600GT-X OK/HTD w/ 512MB (PCI-E) \$229.99
Asus Extreme EN97260 TOP/HTDP w/ 896MB (PCI-E) \$324.99
Asus Extreme EN97260 TOP/HTD w/ 896MB (PCI-E) \$354.99
Asus Extreme EN97260/HTDP w/ 1GB (PCI-E) \$474.99
Asus Extreme EN97280 OC/HTDP w/ 1GB (PCI-E) \$534.99
BFG GeForce 8500GT w/ 1GB (PCI-E) Video Out \$124.99
BFG GeForce 9600GT OC w/ 512MB (PCI-E) Video Out \$149.99
BFG GeForce GTX260 OC MAXCORE w/ 896MB (PCI-E) Video Out \$334.99
BFG GeForce GTX260 OCX w/ 1GB (PCI-E) Video Out \$544.99
Sapphire X1550 w/ 256MB (PCI-E) Video Out \$34.99
Sapphire HD3450 w/ 512MB DDR3 (PCI-E) Video Out \$49.99
Sapphire HD3650 w/ 512MB DDR2 (PCI-E) Video Out \$74.99
Sapphire HD3850 w/ 512MB DDR3 (PCI-E) Video Out \$144.99
Sapphire HD4550 w/ 512MB DDR3 (PCI-E) Video Out \$79.99
Sapphire HD4670 w/ 512MB DDR3 (PCI-E) Video Out \$104.99
Sapphire HD4850 w/ 512MB DDR3 (PCI-E) Video Out \$109.99
Sapphire HD4870 w/ 512MB DDR3 (PCI-E) Video Out \$299.99
Sapphire HD4870 X2 w/ 2GB DDR5 (PCI-E) Video Out \$594.99
Full List of Video Cards Available Online

Hauppauge WinTV HVR-1250 TV Tuner \$64.99
Hauppauge WinTV HVR-1600 TV Tuner \$99.99
Hauppauge WinTV HVR-2250 TV Tuner \$159.99
Hard Drives and Storage
Seagate 80GB ATA/100 7200RPM Hard Drive w/ 2MB \$49.99
Seagate 160GB ATA/100 7200RPM Hard Drive w/ 8MB \$54.99
Seagate 250GB ATA/100 7200RPM Hard Drive w/ 16MB \$69.99
Seagate 320GB ATA/100 7200RPM Hard Drive w/ 16MB \$74.99
Seagate 500GB ATA/100 7200RPM Hard Drive w/ 16MB \$99.99
WD 80GB ATA/100 7200RPM Hard Drive w/ 8MB \$49.99
WD 160GB ATA/100 7200RPM Hard Drive w/ 8MB \$54.99
WD 320GB ATA/100 7200RPM Hard Drive w/ 16MB \$79.99
WD 500GB ATA/100 7200RPM Hard Drive w/ 16MB \$94.99
Serial ATA Hard Disk Drives

CPUs and Memory Available

Intel CPUs

Intel Pentium Duo Core E2220 (Socket 775) 2.4GHz see web
Intel Pentium Duo Core E5200 (Socket 775) 2.5GHz see web
Intel Core 2 Duo E4600 (Socket 775) 2.40GHz/800MHz see web
Intel Core 2 Duo E6550 (Socket 775) 2.33GHz/1066MHz see web
Intel Core 2 Duo E7200 (Socket 775) 2.53GHz/1066MHz see web
Intel Core 2 Duo E7300 (Socket 775) 2.67GHz/1066MHz see web
Intel Core 2 Duo E8200 (Socket 775) 2.67GHz/1333MHz see web
Intel Core 2 Duo E8400 (Socket 775) 3.00GHz/1333MHz see web
Intel Core 2 Duo E8500 (Socket 775) 3.16GHz/1333MHz see web
Intel Core 2 Duo E8600 (Socket 775) 3.33GHz/1333MHz see web
Intel Core 2 Quad Q6600 (Socket 775) 2.4GHz see web
Intel Core 2 Quad Q6700 (Socket 775) 2.6GHz see web
Intel Core 2 Quad Q9300 (Socket 775) 2.5GHz see web
Intel Core 2 Quad Q9400 (Socket 775) 2.6GHz see web
Intel Core 2 Quad Q9550 (Socket 775) 2.8GHz see web
Intel Core 2 Quad Q9600 (Socket 775) 3.0GHz see web

Memory Modules

256 MB, SDRAM PC1333MHz 16Chp see web
512 MB, SDRAM PC1333MHz see web
512 MB, DDR PC3200 (400MHz) see web
1 GB, DDR PC3200 (400MHz) see web
1 GB, DDR2 PC5400 (667MHz) see web
2 GB, DDR2 PC5400 (667MHz) see web
1 GB, DDR2 PC6400 (800MHz) see web
2 GB, DDR2 PC6400 (800MHz) see web
1 GB, DDR3 PC10666 (1333MHz) see web
2 GB, DDR3 PC10666 (1333MHz) see web
Corsair TWINX 2GB PC6400 Dual Channel Kit (#6400) see web
Corsair TWINX 4GB PC6400 Dual Channel Kit (#9009) see web
OCZ 4GB PC6400 Gold Dual Channel Kit (#7995) see web
OCZ 4GB PC6400 Reaper Dual Channel Kit (#839) see web
OCZ 4GB PC6500 Reaper Dual Channel Kit (#843) see web
OCZ 4GB PC3-12800 Gold Dual Channel Kit (#9630) see web

Seagate 80GB SATA/300 7200RPM Hard Drive w/ 8MB \$44.99
Seagate 160GB SATA/300 7200RPM Hard Drive w/ 8MB \$49.99
Seagate 320GB SATA/300 7200RPM Hard Drive w/ 16MB \$64.99
Seagate 500GB SATA/300 7200RPM Hard Drive w/ 32MB \$79.99
Seagate 500GB CE SATA/300 7200RPM Hard Drive w/ 32MB \$119.99
Seagate 640GB SATA/300 7200RPM Hard Drive w/ 32MB \$94.99
Seagate 1TB SATA/300 7200RPM Hard Drive w/ 32MB \$149.99
Seagate 1.5TB SATA/300 7200RPM Hard Drive w/ 32MB \$224.99
WD 150GB SATA/300 10000RPM Hard Drive w/ 16MB \$209.99
WD 300GB SATA/300 10000RPM Hard Drive w/ 16MB \$319.99
WD 80GB SATA/300 7200RPM Hard Drive w/ 8MB \$49.99
WD 160GB SATA/300 7200RPM Hard Drive w/ 8MB \$54.99
WD 320GB SATA/300 7200RPM Hard Drive w/ 16MB \$64.99
WD 500GB SATA/300 7200RPM Hard Drive w/ 16MB \$79.99
WD 640GB SATA/300 7200RPM Hard Drive w/ 16MB \$89.99
WD 640GB SATA/300 7200RPM Hard Drive w/ 32MB \$104.99
WD 750GB SATA/300 7200RPM Hard Drive w/ 16MB \$134.99
WD 1TB SATA/300 7200RPM Hard Drive w/ 16MB \$154.99
Notebook Hard Drives (2.5")
Fujitsu 40GB PATA 5400RPM Hard Drive w/ 2MB \$39.99
Fujitsu 120GB PATA 5400RPM Hard Drive w/ 8MB \$59.99
Fujitsu 320GB SATA 5400RPM Hard Drive w/ 8MB \$79.99
Seagate 100GB SATA 7200RPM Hard Drive w/ 8MB \$59.99
Seagate 320GB SATA 7200RPM Hard Drive w/ 16MB \$104.99
Samsung 250GB SATA 5400RPM Hard Drive w/ 8MB \$64.99
Samsung 320GB SATA 5400RPM Hard Drive w/ 8MB \$64.99
WDC 320GB SATA 5400RPM Hard Drive w/ 8MB \$64.99
Full List of Hard Drive Brands Available Online
Sony 1.44MB Floppy Disk Drive (Black or Beige) \$9.99
Sony 1.44MB Floppy Disk Drive (USB) \$29.99
Promise Jittera/133 TX2 Controller Card (PCI) \$54.99
Promise SATA2/300 TX4 Controller Card (PCI) \$84.99
Vantec UGT-5T400 SATA/300 Controller Card (PCI Express) \$44.99

Flash Memory Storage

Kingston DataTraveler 1GB Flash Memory, USB 2.0 \$9.99
OCZ 2GB Rally2 Flash Memory, USB 2.0 \$14.99
OCZ 4GB Rally2 Flash Memory, USB 2.0 \$19.99
OCZ 8GB Rally2 Flash Memory, USB 2.0 \$34.99
OCZ 16GB Rally2 Flash Memory, USB 2.0 \$59.99
OCZ 32GB ATX Flash Memory, USB 2.0 \$104.99
OCZ 2GB Secure Digital Memory, 150x \$14.99
OCZ 4GB SDHC Secure Digital Memory, 66x \$19.99
Flash and Brand Name Memory Also Available Online

Optical Drives

Sony 16X DVD-ROM Drive (Beige/Black) \$19.99
LiteOn 16X DVD-ROM Drive (Black) Serial-ATA \$24.99
Full List of Drives Available Online
LG GSA-H55N (18x Dual Layer DVD R/RW) (Black) (SATA) \$29.99
LG GH22N20 (22x Dual Layer DVD R/RW) (Black) (PATA) \$29.99
LG GH22LS30 (22x Lightscribe DVD R/RW) (Black) (SATA) \$34.99
LG GGC-H20L (Blue-Ray/DVD-DVD) (Black) (SATA) \$154.99
Pioneer DVR-16 (20x Dual Layer DVD R/RW) (Beige/Black) \$29.99
Pioneer DVR-215 (20x Dual Layer DVD R/RW) (SATA/Beige) \$34.99
Pioneer DVR-216 (20x Dual Layer DVD R/RW) (SATA/Beige/Black) \$34.99
Plextor PX-820A (20x Dual Layer DVD R/RW) (Serial ATA) \$79.99
Sony Optiarc 7200S (20x DVD R/RW) (Black) (Serial ATA) \$29.99
CD-R, CD-RW & DVD-R Media Available Online

Sound Cards

Soundblaster Audigy X-Fi Xtreme (PCI) (OEM) \$49.99
Soundblaster Audigy X-Fi Xtreme (PCI-Express) (OEM) \$49.99
Soundblaster Audigy X-Fi XtremeAudio (PCI) (Retail Box) \$54.99
Soundblaster X-Fi Surround 5.1 (USB) (Retail Box) \$59.99
Soundblaster Audigy X-Fi XtremeGamer (Retail Box) \$99.99
Soundblaster X-Fi Titanium (PCI-E) (Retail Box) \$99.99
Soundblaster X-Fi Titanium Fatality Pro (PCI-E) (Retail Box) \$124.99
Soundblaster Audigy X-Fi XtremeGamer Fatality (Retail Box) \$149.99
Soundblaster X-Fi Titanium Fatality Champion (PCI-E) (Retail Box) \$184.99
Soundblaster Audigy X-Fi Elite Pro 55A (PCI) (Retail Box) \$289.99

Network Solutions

D-Link 10/100Mbps Ethernet Card \$9.99
D-Link Gigabit Ethernet Card \$24.99
TP-Link Gigabit Ethernet Card \$14.99
Asus WL-1386 Wireless-G Ethernet Adapter \$24.99
Zio X9 Wireless-G PCI Ethernet Adapter \$19.99
Zio X7 Wireless-G USB Ethernet Adapter \$19.99
Linksys WMP54G - 802.11g Wireless Adapter PCI \$49.99
Linksys WPC54G - 802.11g Wireless Adapter PCMCIA \$44.99
Linksys WUS54G - 802.11g Wireless Adapter USB \$59.99
Cables, Ends and Adapters are Available Online
SMC 10/100Mbps - 5 Port Switch \$19.99
TP-Link 10/100Mbps - 5 Port Switch \$14.99
D-Link DSL-2320B xDSL Ethernet/USB Modem \$69.99
Linksys BEFSR41 Cable/xDSL Router - 4 Port \$59.99

Cases and Power Supplies

Antec NSK1380 Cube Case w/ 350W (mATX) \$124.99
Antec NSK4480 Mini-Tower w/ 380W (mATX) \$109.99
Antec NSK4480B Mini-Tower w/ 380W (mATX) Black \$109.99
Antec SLK1650 Mid-Tower w/ 350W (ATX) Beige \$179.99
Antec Super Lanbox Aluminum (ATX) \$69.99
Antec Sonata III 500 Piano Black w/ 500W (ATX) \$134.99
Antec Sonata Designer 500 White w/ 500W (ATX) \$154.99
Antec Sonata Plus 550 Black w/ 550W (ATX) \$184.99
Antec P182 Black Tower Case (ATX) \$164.99
Antec P182SE Black Tower Case (ATX) \$179.99
Antec Three Hundred Mid-Tower (ATX) Black \$64.99
Antec Nine Hundred Mid-Tower (ATX) Black \$129.99
Antec Twelve Hundred Mid-Tower (ATX) Black \$159.99
Asus TA851 Mid-Tower (ATX) Black/Silver \$44.99
Asus TA-B12 Mid-Tower (ATX) Silver \$44.99
Chenbro PC6169 Mid Tower Case (ATX) Black \$54.99
Chenbro PC6139 Mid Tower Case (ATX) Black \$44.99
CoolerMaster Centurion 590 Mid Tower Case (ATX) Black \$74.99
CoolerMaster CM 690 Mid Tower Case (ATX) Black \$89.99
Enermax Chakra Mid Tower Case (ATX) Black \$64.99
Enlight Mid Tower Case w/ 7 Bays (ATX) Black \$54.99
Thermaltake Wing RS 100 - VIGOROUS Black ATX Case \$59.99
Thermaltake Swing VB4000BWS Black ATX Case \$74.99
Thermaltake Mozart VC4000S Silver ATX Desktop Case \$134.99
Thermaltake Tsunami Dream VA3000BWA Black ATX Case \$134.99
Thermaltake Tsunami Dream VA3000SVA Silver ATX Case \$154.99
Thermaltake Armor J. VC3000BWS Black ATX Case \$109.99
Thermaltake Armor VA8000BWS Black ATX Case \$169.99
Thermaltake Armor VH6000BWS Black ATX Case \$214.99
LianLi PC-60A Plus II Aluminum Case (ATX) Silver \$164.99
LianLi PC-60B Plus II Aluminum Case (ATX) Black \$164.99
Naspe R-318 Case w/ 350W (ATX) Beige \$49.99
Naspe ME111 Case w/ 350W (ATX) Black \$49.99
Full List of Power Supplies Available Online

Economy 250W ATX Power Supply \$19.99
Antec Quattro 1000W True Power Power Supply \$244.99
Enlight 350W Power Supply \$19.99
Enlight 450W Power Supply w/ 2 fans \$59.99
Enermax EG565P-VE Power Supply w/ 2 fans (All-in-One) \$74.99
Enermax Galaxy DX1 1000W Power Supply \$264.99
Enermax Liberty 400W Power Supply (Modular Connectors) \$79.99
Enermax Liberty 500W Power Supply (Modular Connectors) \$99.99
Enermax Liberty 620W Power Supply (Modular Connectors) \$134.99
Enermax Modu82+ 625W Power Supply \$154.99
Enermax Tomahawk 405W Power Supply \$149.99
Enermax Tomahawk 450W Power Supply \$169.99
Enermax Tomahawk 500W Power Supply \$179.99
Naspe ISO-500 450W Power Supply w/ 2 fans \$39.99
OCZ 600W GameStream SLI Power Supply \$194.99
OCZ 700W GameStream SLI Power Supply \$249.99
OCZ 850W GameStream SLI Power Supply \$304.99
Seasonic S12-550 550W ATX12V v2.0 Power Supply \$99.99
Seasonic S12-650 650W ATX12V v2.0 Power Supply \$129.99
Xigmatek NRP-MC751 750W ATX12V v2.2 Power Supply \$124.99
Xigmatek NRP-MC851 850W ATX12V v2.2 Power Supply \$174.99
Xigmatek NRP-HC101 1000W ATX12V v2.2 Power Supply \$239.99
Xigmatek NRP-HC1201 1200W ATX12V v2.2 Power Supply \$259.99
Zalman ZM850-HQ Outlet 850W ATX12V v2.2 Power Supply \$219.99

Monitors

Viewsonic VA703b - 17in 4:3 LCD \$179.99
Viewsonic VA192wb - 19in 16:10 LCD \$199.99
Viewsonic VX2240wm - 22in 16:10 LCD \$274.99
Acer X183HB - 18.5in 16:10 LCD \$139.99
Acer X193WB - 19in 16:10 LCD \$149.99
Acer X223WBD - 22in 16:10 LCD \$199.99
Acer X243WBD - 24in 16:10 LCD \$329.99
Acer X263WBI - 26in 16:10 LCD \$414.99

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EEEBX 8202 (Main H270, 80GB HD, 1GB DDR2 Ram, XP Home) \$344.99
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This new Premium pedestal server offers fault tolerance with RAID 5. Should one of its three drives fail, your data is still protected and business continues as usual

\$1399⁰⁰ ✓ Compatible with XP, 2003, and Linux
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Intel® E8500 Core2Duo™ 3.16GHz processor • Intel S3210 server motherboard • 4096MB 800MHz DDR2 memory • Four Seagate enterprise drives: one 250GB for your operating system and programs; three 500GB drives in a protected RAID array for your data • Built-in Intel video controller • Dual gigabit LAN ports • Heavy duty power supply • Antec P182 full tower chassis • DVD ReWriter • Logitech keyboard and optical mouse • Two year parts and labour warranty
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This system features RAID security... Should one of the two included drives fail, your data is protected!

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- ✓ RAID 0/1/5/10
- ✓ Dual 500 GB drives

\$1229⁰⁰

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Intel quad-core Q9550 Core2Quad™ 2.66GHz 1333MHz FSB processor • Intel G45 chipset motherboard • 4096MB DDR2 800MHz memory • Dual Seagate 500GB SATA3 drives in a RAID 1 array for security • 500 watt power supply • Intel X4500 HD graphics controller • Antec 300 tower chassis • Acer 22 inch HD 1650x1050 resolution digital LCD display • DVD ReWriter • Logitech Keyboard • Logitech optical mouse • Your choice of Microsoft XP Professional or Vista Business edition operating systems
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ATI 4870 GAMERS SYSTEM

750Mhz Video Card!

This system features Asus's new P5QL Pro motherboard with Intel's new P43 Express chipset.

- ✓ Excellent gaming on a budget
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- ✓ 22" 5ms widescreen monitor
- ✓ 3.0GHz Core2Duo processor
- ✓ Antec Three Hundred chassis
- ✓ Antec 500 watt power supply

\$1339⁰⁰

What's Included?

Intel Core2Duo™ E8400 45nm processor • Asus Intel P43 P5QL Pro motherboard • 4GB of Kingston 800MHz DDR2 memory • 500GB Seagate SATA drive • Asus 750MHz ATI 4870 512mb video card with dual DVI output • Antec Three Hundred gamers chassis • Antec TruePower 550 watt power supply • Acer 22" 5ms wide screen 1680x1050 resolution monitor • 22x DVD/CD writer • Logitech keyboard and optical mouse • Logitech LS21 2.1 speakers • Microsoft Vista Premium
Package as listed (#Q64787) **\$1339.00**

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\$959
Websystem System #Q64604

- ✓ Acronis data loss protection software included
- ✓ Features Intel's new faster G45 Express chipset
- ✓ 22" widescreen 1680x1050 pixel monitor
- ✓ Microsoft's Windows XP Professional
- ✓ Dual output to LCD plus HDMI device
- ✓ 4GB of high-speed 800MHz memory

FEATURES AND SPECIFICATIONS

- Intel Core2Duo™ e8400 45nm processor
- Intel DG45LD top of the line board
- 4GB of Kingston 800MHz DDR2 memory
- 500GB Seagate SATA3 hard drive
- Intel's new X4500HD video controller
- Antec Three Hundred tower chassis with super quiet 140mm cooling fan
- Ace quiet heavy-duty power supply
- Acer 22inch widescreen digital monitor with 1680x1050 res.
- LG SATA dual-layer 22x DVD/CD writer with software bundle
- Logitech desktop bundle corded keyboard and optical mouse
- Microsoft Windows XP Pro
- Acronis True True Image 11



"GREEN" PC

Featuring Intel's new ATOM processor, this "expandable" bookshelf sized computer is environmentally friendly and much cheaper to run than a standard desktop system.

\$259⁰⁰

What's Included?

Intel 1.6ghz ATOM processor • Intel ATOM mainboard • 512mb DDR2 memory • Seagate 80gb hard drive • Integrate business graphics • Small footprint chassis with 120 power supply • 22x DVD writer with software.
Package as listed (#Q64286) **\$259.00**

LASER PRINTERS

SAMSUNG ML2010r (printer/20ppm/1200dpi)	66 ⁹⁵
ML2571n (printer/25ppm/1200dpi/lan)	141 ⁹⁵
ML3051nd (printer/28ppm/1200dpi/lan)	237 ⁹⁵
CLP300 (colour/17ppm/600dpi)	264 ⁹⁵
SCX-4521f (laser,printer,fax,copy)	160 ⁹⁵
CLX2160 combination colour printer, colour scanner, and colour copier	235 ⁹⁵

HEWLETT PACKARD

P1006 (b&w/17ppm/1200 dpi)	89 ⁹⁵
P1505 (b&w/24ppm/1200 dpi)	88 ⁹⁵
P1505n (lan/b&w/24ppm/1200 dpi)	132 ⁹⁵
P2015 (b&w/27ppm/1200 dpi)	263 ⁹⁵
CP1215 (colour/12ppm/600 dpi)	136 ⁹⁵
CP1515n (lan/colour/12ppm/600 dpi)	219 ⁹⁵
3600n (lan/colour/17ppm/600dpi)	290 ⁹⁵
2840 (colour laser,scanner,copier, fax)	880 ⁹⁵

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HP iPAQ 510 (QB Phone/Mobile 6)	248 ⁹⁵
HP iPAQ 110 (Pocket PC/Wifi)	274 ⁹⁵
HP Enterprise 210 (Pocket PC/Wifi/IM)	362 ⁹⁵
ASUS R300 (3.5" GPS Multimedia System)	172 ⁹⁵
ASUS P527 (QB Phone/Wifi/GPS/Mobile 6)	519 ⁹⁵
Palm Z22 (Pocket Organizer)	122 ⁹⁵
Palm E2 (Pocket Organizer)	215 ⁹⁵
Palm TX (Pocket Organizer/Wifi/Bluetooth)	330 ⁹⁵
TomTom One (3.3" Pocket GPS System)	196 ⁰⁰
TomTom XL330 (4.3" Pocket GPS System)	266 ⁰⁰

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30" Size
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Notebooks - Notebooks - Notebooks

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- 2048mb 533MHz DDR2 memory
- Microsoft Vista Business edition plus XP Pro downgrade CD
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AS-PC900-W047 **\$401.90**



Acer Celeron Notebook

AMD Celeron 2ghz processor, 1GB memory, 120gb hard drive, 15" wide display, Intel X4500 video, Windows Vista Basic, DVD writer
AC-EMD520-2695 **\$500.95**



Lenovo Business Notebook

Intel T5750 Core2Duo™ processor, 1024mb, 80gb hard drive, 15.4" wide display, Intel video, Windows XP Pro, Fingerprint scanner, DVD writer
LE-7650F6U **\$657.95**



MSI Wind 6-Cell NetBook

Intel Atom processor, 1024mb, 80gb hard drive, 10" wide screen display, Intel video, Windows Home, 802.11b/g Wireless, Bluetooth, 2.6lbs, White chassis.
MS-U100-053US **\$589.95**



Fujitsu LifeBook A6110

Intel T5550 Core2Duo™ processor, 2048mb, 200gb hard drive, 15.4" wide display, Intel video, Windows Vista Home Premium, DVD writer
FU-A6110A-VP **\$773.95**



Acer Business Notebook

Intel T7550 Core2Duo™ processor, 1024mb, 160gb hard drive, 17.0" wide display, Intel X3100 video, Windows Vista Business edition w/XP Pro, DVD writer
AC-EX7620-6772 **\$739.95**



Acer Aspire 3-Cell NetBook

Intel Atom processor, 1024mb, 160gb hard drive, 8.9" wide screen display, Intel GMA950 video, Windows Home, 802.11b/g Wireless, 2.6lbs
AC-AQAT50-1982 **\$390.95**



Asus Ultra-Speed Notebook

Intel P8400 Core2Duo processor, 4096mb, 320gb hard drive, 15" wide display, nVidia 9600M video, Windows Vista Premium edition, DVD writer, Bag, Mouse
AS-M50VM-A1 **\$1259.95**



Fujitsu Notebook/Tablet

Intel P8400 Core2Duo™ processor, 2018mb, 160gb drive, 13.3" touch screen, Intel video, Windows Vista Premium edition, DVD writer
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SERVERS

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#Q61133

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- ✓ 4 USB 2.0 ports, 2 PS2 ports
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Package as listed (#Q64114) **\$2349⁰⁰**

Rackmount 1U RAID-1 Ultra Quiet - Low Power



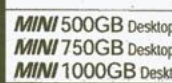
- ✓ Intel Pentium-D processor
- ✓ 1GB dual channel memory
- ✓ Asus server motherboard
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MINI 750GB Desktop (#GT-MINI750PRO2)	174 ⁹⁵
MINI 1000GB Desktop (#GT-MINI1000PRO)	204 ⁹⁵

MICRO 160GB Pocket (#GT-MICRO160)	79 ⁹⁵
MICRO 250GB Pocket (#GT-MICRO250)	99 ⁹⁵
500GB Seagate Pocket FreeAgent GO	219 ⁹⁵

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Push a button and make up to 11 copies of a DVD or CD automatically. Top quality Athena controller allows writing at up to 18x on DVD media.

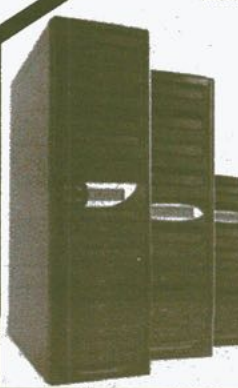
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7-Target Ped (#Q56516)	559 ⁰⁰
9-Target Ped (#Q56517)	619 ⁰⁰
6-Target Rack (#Q61349)	629 ⁰⁰
11-Target Ped (#Q59198)	679 ⁰⁰

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1000GB Drive Kit 256⁹⁵
1500GB Drive Kit 301⁹⁵

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- ✓ Microsoft remote control & receiver
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Model N1930W 19"

\$356⁹⁵



intel PROCESSORS AMD

LCD TELEVISIONS

VIEWSONIC N1630W 16" TV. 720p support
1366x768 res. ATSC tuner 296⁹⁵
VIEWSONIC N1930W 19" TV. 720p support
1440x900 res. ATSC tuner 344⁹⁵
VIEWSONIC NX2232W 22" TV. 720p support
1680x1050 res. ATSC tuner 402⁹⁵
SAMSUNG 225ms 22" TV. 720p support
1680x1050 res. No tuner 378⁹⁵
VIEWSONIC N2635W 26" TV. 720p support
1366x768 res. ATSC tuner 577⁹⁵
VIEWSONIC N3235W 32" TV. 720p support
1366x768 res. ATSC tuner 722⁹⁵
VIEWSONIC N3735W 37" TV. 720p support
1366x768 res. ATSC tuner. DNX 809⁹⁵
VIEWSONIC N4285p 42" TV. 1080p support
1920x1080 res. ATSC tuner 1214⁹⁵

NETWORKING

WIRELESS ROUTERS/AP
TP-Link Wireless Router WR642g (G108) 32⁹⁵
TP-Link Wireless Router WR941n (N300) 55⁹⁵
Dlink Wireless Router DIR-615 (N300) 59⁹⁵
Dlink Wireless Router DIR-655 (N300) 102⁹⁵

Let's you network share a USB printer or hard drive!

Linksys Wireless Router WRT160N (N300) 94⁹⁵

Linksys Wireless Router WRT310N (N300) 126⁹⁵

WIRELESS ADAPTERS

TP-Link Wireless PCI Card WN651g (G108) 24⁹⁵
TP-Link Wireless USB WN620g (G108) 24⁹⁵
TP-Link Wireless USB WN821n (N300) 32⁹⁵
TP-Link Wireless PCI Card WN851n (N300) 34⁹⁵
Trendnet Wireless PCI Card 423p1 (G54) 30⁹⁵
Trendnet Wireless USB 424ub (G54) 30⁹⁵
Trendnet Wireless USB 624ub (N300) 71⁹⁵
Linksys Wireless USB WUSB54G (G54) 66⁹⁵
Linksys Wireless USB WUSB600N (N300) 80⁹⁵
Trendnet Wireless PCI Card 623p1 (N300) 71⁹⁵
Dlink Wireless PCI Card DWA-542 (N300) 68⁹⁵
Dlink Wireless USB DWA-130 (N300) 59⁹⁵

WIRED ADAPTERS

Trendnet 10/100/1000 Card TEG-PCITXR (PCI) 20⁹⁵

SWITCHES

Trendnet Switch 8port 10/100/1000 TEG-S8TXE 66⁹⁵
SMC Switch 8port 10/100/1000 SMCSS8 63⁹⁵
3Com Switch 8port 10/100/1000 3C9S08 78⁹⁵
Cisco Switch 8port 10/100/1000 SD2008 81⁹⁵
Dlink Switch 16port 10/100/1000 DGS-1016D 178⁹⁵
Dlink Switch 24port 10/100/1000 DGS-1024D 203⁹⁵
Trendnet Switch 16port 10/100/1000 TEG-S160TX 192⁹⁵
Trendnet Switch 24port 10/100/1000 TEG-S240TX 249⁹⁵

CAPTURE CARDS

Asus P1731 Tuner with remote, MCE, PCI 47⁹⁵
HAUPPAUGE 150 for Vista, PCI 72⁹⁵
HAUPPAUGE HD-PVR external USB HD recorder for
Satellite or Cable TV HD programs. Hooks up to your computer
by USB and to your box by component cables 237⁹⁵

Hauppauge!



Includes a portable high-def antenna!

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INTEL Pentium Dual Core

2.00Ghz (800 Mhz, 1mb, E2160) 79⁹⁵
2.20Ghz (800 Mhz, 1mb, E2200) 87⁹⁵

INTEL Core2Duo Dual Core

2.40Ghz (800Mhz, 2mb, E4600) 147⁹⁵
2.70Ghz (800Mhz, 2mb, E4700) 179⁹⁵
2.53Ghz (1066Mhz, 3mb, E7200) 146⁹⁵
3.00Ghz (1333Mhz, 6mb, E8400) 198⁹⁵

3.16Ghz (1333Mhz, 6mb, E8500) 222⁹⁵

3.33Ghz (1333Mhz, 6mb, E8600) 321⁹⁵

INTEL Core2Quad Quad Core

2.44Ghz (1066Mhz, 8mb, Q6600) 221⁹⁵
2.50Ghz (1333Mhz, 6mb, Q9300) 295⁹⁵
2.66Ghz (1333Mhz, 12mb, Q9450) 348⁹⁵
2.83Ghz (1333Mhz, 12mb, Q9550) 371⁹⁵
3.00Ghz (1333Mhz, 12mb, Q9650) 1214⁹⁵

3.20Ghz (1600Mhz, 12mb, Q9770) 1752⁹⁵

AMD Athlon64 X2 Dual Core

5000 Athlon X2 (2.6Ghz, 2mb, AM2) 80⁹⁵
5600 Athlon X2 (2.8Ghz, 2mb, AM2) 99⁹⁵

AMD Athlon64 X2 Tri Core

8450 Phenom (2.1Ghz, 3.5mb, AM2+) 122⁹⁵

AMD Athlon64 X2 Quad Core

9550 Phenom (2.2Ghz, 4mb, AM2+) 193⁹⁵

MOTHERBOARDS

FOR INTEL PROCESSORS

Asus P5N-EM-HDMI n7700 C2D 88⁹⁵
Asus P5K-SE P55 45nm 1333mhz C2D 99⁹⁵
Asus P5QL-PRO P43 1333mhz C2D 107⁹⁵
Asus P5E-VM-D0 C35 45nm 1333mhz C2D 142⁹⁵
Asus P5Q P43 n7800 45nm 1333mhz C2D 145⁹⁵
Asus P5E-VM-HDMI C35 n7800 45nm 1333mhz 151⁹⁵
Asus P5N-D 750 n7800 45nm 1333mhz 164⁹⁵
Asus P5Q-E P43 n7800 45nm Crossfire Compatible 176⁹⁵
Asus P5E-WS-PR C35 45nm 1333mhz C2D 317⁹⁵
Asus P5N-T-DX 780 45nm 1333mhz C2D 246⁹⁵
Asus STRIKER Extreme 780 45nm 1000mhz 471⁹⁵
Intel DG31GL G31 45nm 1333mhz 74⁹⁵
Intel DP43TF P43 45nm 1333mhz 121⁹⁵
Intel DG45ID G45 n7800 45nm 1333mhz 142⁹⁵
Intel DG45FC G45 n7800 45nm 1333mhz 193⁹⁵
Intel DP45SG P43 n7800 45nm Crossfire Compatible 188⁹⁵
Intel DX48BT2 n48 G45 45nm 1000mhz 326⁹⁵

FOR AMD PROCESSORS

Asus M2A-VM n7800 45nm 78⁹⁵
Asus M3A n7800 45nm 105⁹⁵
Asus M3A32-MVP-WF n7800 45nm 213⁹⁵
Asus M3N-HT-DX-MP n7800 45nm 262⁹⁵
Gigabyte GA-M61PM3-S2 n7800 45nm 61⁹⁵

SCANNERS

Canon Lide100 Photo 1200x2400 62⁹⁵
Epson V200 Photo 4800x9600 88⁹⁵
Epson V500 Photo/Neg 6400x9600 231⁹⁵
Epson V750-M 6400x9600 professional
scanner with high-pass optics/firewire 676⁹⁵

HARD DRIVES 2.5"

SEAGATE IDE (PATA)

160GB (ST9160821A) 5400 RPM 5years 77⁹⁵

SEAGATE SERIAL (SATA)

80GB (ST980825AS) 7200 RPM 5years 106⁹⁵

160GB (ST9160821AS) 5400 RPM 5years 69⁹⁵

250GB (ST9250827AS) 5400 RPM 5years 78⁹⁵

200GB (ST9200420AS) 7200 RPM 5years 86⁹⁵

320GB (ST9320421AS) 7200 RPM 5years 100⁹⁵

HARD DRIVES 3.5"

IDE (PATA)

Seagate 80GB (ST380215A) 2mb 5years 47⁹⁵

Seagate 160GB (ST3160815A) 8mb 5years 55⁹⁵

WD 320GB (WD3200JBRTL) 8mb 3years 100⁹⁵

WD 500GB (WD5000JBRTL) 8mb 3years 132⁹⁵

SEAGATE SERIAL (SATA)

80GB (ST380815AS) 8mb 5years 45⁹⁵

160GB (ST3160815AS) 8mb 5years 49⁹⁵

250GB (ST3250410AS) 16mb 5years 62⁹⁵

320GB (ST3320620AS) 16mb 5years 74⁹⁵

500GB (ST3500320AS) 32mb 5years 77⁹⁵

500GB (ST3500320NS) Enterprise 105⁹⁵

750GB (ST3750330AS) 32mb 5years 125⁹⁵

1000GB (ST31000340AS) 32mb 5years 149⁹⁵

1500GB (ST31500341AS) 32mb 5years 240⁹⁵

POWER SUPPLIES

ACE

Performa 350/450/520 watts 38⁹⁵/58⁹⁵/64⁹⁵

ANTEC

TruePower 550/650 watts (sli+cf) 87⁹⁵/113⁹⁵

Quattro 850/1000w (sli+cf) 212⁹⁵/251⁹⁵

Signature 650/850w (sli+cf) 209⁹⁵/254⁹⁵

OCZ

GameXstream 700/850w (sli+cf) 122⁹⁵/172⁹⁵

PC Power and Cooling

Silencer® Quad 750w (sli+cf) 138⁹⁵

SPI (for 2U Racks) 350w 39⁹⁵

OPTICAL DRIVES

Pioneer (DVR-116) 20x +20x +10x DL 33⁹⁵

Liteon (20A4P) 20x +20x -DL 33⁹⁵

LG (GH22NS) 22x +22x -DL SATA 34⁹⁵

LG (GH22LP) 22x +22x -DL IDE w/L 37⁹⁵

Pioneer (DVR-216) 20x SATA DL 35⁹⁵

Liteon USB DVDRW slim external kit 80⁹⁵

Liteon (DH-401S-11) Blu-Ray reader 119⁹⁵

LG (H20L) Blu-Ray/HD player+DVDRW 153⁹⁵

LG (GBW-H20L) Blu-Ray writer 264⁹⁵

LaCie External Blu-Ray writer PC/MAC 536⁹⁵

SYSTEM CASES

Nspire Economy (with 350 watts) 46⁰⁰

GreyTech CSA Tower (n/p 120mm fan) 37⁹⁵

InWin MCE Micro Desktop (300w) 74⁹⁵

Antec Sonata III (w/500 watts, USB) 139⁹⁵

NXZT Apollo (n/p 120mm led lighting) 89⁹⁵

NXZT Lexa (n/p 120mm led lighting) 117⁹⁵

Antec Fusion Media Center kit with 430 watt
power, display, & IR receiver. Super quiet! 199⁹⁵

P182 Aluminum mid tower n/p 159⁹⁵

Thermaltake Tsumami Tower (n/p) 127⁹⁵

Thermaltake DH101 Home Theatre 238⁹⁵

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VIDEO CARDS

ASUS

8600GT 540mhz Silent 512^{mb} 96⁰⁰

9600GT 650mhz 512^{mb}, Silent 2xDVI 150⁰⁰

9800GT 600/725mhz 512^{mb}, 2xDVI, 162⁰⁰ 163⁰⁰

4850 625mhz DDR3 512^{mb}, 2xDVI 212⁹⁵

4870 750mhz DDR5 512^{mb}, 2xDVI 341⁹⁵

GTX260/280 896^{mb}/1024^{mb} 336⁹⁵/541⁹⁵

BFG

9800GT 625mhz 512^{mb}, 2xDVI 172⁹⁵

GTX260/280 896^{mb}/1024^{mb} 322⁹⁵/569⁹⁵

SAPPHIRE

X2400PRO 256^{mb}, hdmi 42⁰⁰

3870 DDR4 512^{mb}, hdmi 140⁰⁰

4850 625mhz DDR3 512^{mb}, 2xDVI 199⁰⁰

4870 750mhz DDR5 512^{mb}, 2xDVI 353⁰⁰

Palit/Sparkle/Chaintech

8600GT 400mhz 512^{mb}, DVI, PCIE 89⁹⁵

9600GT 650mhz 512^{mb}, 2xDVI 137⁰⁰

9600GT 400mhz 1024^{mb}, 2xDVI 136⁹⁵

9800GT 600mhz 512^{mb}/1024^{mb}, 2xDVI 167⁹⁵/214⁹⁵

4850 625mhz DDR3 512^{mb}, 2xDVI 231⁹⁵

4870 750mhz DDR5 512^{mb}, 2xDVI 327⁹⁵

4870 750mhz DDR5 1024^{mb}, 2xDVI 373⁹⁵

GTX260 576mhz DDR3 896^{mb}, 2xDVI 377⁹⁵

PROJECTORS

ACER

Building the Ultimate Media PC pt. 1

Gathering the parts for the 10-foot PC

When Microsoft introduced its Media Center Edition version of Windows XP in January of 2002, it laid clear another of its battle fronts as the lowly PC made its march from basement to den to family space and, finally, into the living room. Or at least, that was the hope. Windows XP Media Center Edition was never released as a stand-alone operating system. Instead, it was only volume licensed to system builders. And not your local boutique computer shop either; only PC powerhouses like HP, Dell and Sony were able to build systems around this new media-friendly OS.

This move was understandable in many ways. For one, it allowed Microsoft to create a seamless experience and focus its support on a smaller grouping of standardized hardware — TV tuner cards, video cards, audio hardware and the like — and make sure that they worked without issue. However, it also cut off the potential for hobbyist or boutique computer builders to get involved with Windows XP's new media functions. Computer hobbyists tend not to opt for branded machines as they simply don't offer the flexibility for future-proofing, choice of components, upgrades and so on that a custom-built machine does.

While Windows XP Media Center Edition put the media PC movement on the mainstream map, other OS solutions became the driving force within the hobbyist media PC community. Most notably, MythTV, an open source project built on Unix with a large and growing driver base for common (and not so common) media PC components, support for remote controls and TV-friendly interface (among other things) gave the software a strong foothold among the hardcore. MythBuntu, an Ubuntu installation that contributes back to the larger Ubuntu developer community, makes for a system that pulls double duty as both an entertainment interface and, potentially, as a main PC too. The caveat is that, even though Ubuntu is among the friendliest distros going, you have to be comfortable working within Linux.

Windows Vista — at least in the higher end of its product offering, the Home Premium and Ultimate editions — bundles in Media Centre functions and a living room friendly window into video and other content that's most at home when played back on a big plasma or LCD screen, projector or, well, anything bigger than a standard computer monitor. The "10-foot interface," as it's often called.

These media functions, which include recording live TV, watching or authoring DVDs, listening to music and viewing pictures, combined with all the usual Windows Vista standards equate to a computer that really can pull double duty without asking potential users to make the switch. It also means that computer hobbyists and boutique computer shops alike can dip their toes into media PC waters without losing the comfortable Windows operating system environment in the process.

With that in mind, we're going to embark on a two-part series that endeavours to bring you the Ultimate Media PC build, pulling together the components to build a

capable media PC that won't feel out of place in the living room. This first instalment will look at the hardware we're going to use (bear in mind, it's subject to change.)

The second instalment will follow along with the actual building process and then put the Ultimate Media PC through its paces.

At the end of the series, we'll give the Ultimate Media PC away to one lucky reader. Contest details and entry form are on our website at www.hubcanada.com.

The Case

Thermaltake

DH-101 VF7001BNS ~\$240

www.thermaltake.com

We'll be opting for Thermaltake's DH-101 from the Digital Home chassis series. As tempting as the DH-102 model is with its 7-inch colour LCD touchscreen is, the \$500 price tag is a little over the top for our needs.

The DH-101 is a stylish chassis with a piano black case and a black, brushed aluminium face. The form factor is more like a desktop than a tower and this, combined with the overall look, make it perfectly suited to a home entertainment centre where a standard tower-format PC would look out of place.

The DH-101 also ships with a full-sized remote for looking after common media PC functions as well as controlling the cursor on screen. We'll still need a mouse, but for simple functions like launching the media front-end to watch, record or schedule TV, play a DVD and so on, the virtual mouse on the Thermaltake remote will suffice.

The Power

Cooler Master

UCP 700W RS-700-AAAA-A3 ~\$165

www.coolermaster.com

As is often the case with custom chassis, ours ships without a power supply unit (PSU). This allows users to choose the best PSU for the application, including choosing the wattage, the cooling method, the noise level and other key concerns. We're opting for the quiet UCP line from Cooler Master and choosing the 700 watt model. 700 watts might prove insufficient in a gaming rig running dual video cards in SLI (nVidia) or CrossFireX (ATI), along with multiple hard drives and other touches. However, our media PC only needs to run a single video card, saving any available PCI and PCIe slots for future expansion. This setup will allow us plenty of room to add in more hardware later on — another video card or more hard drives. Balancing price and performance, 700 watts should be more than sufficient and will still allow some room for future system additions or expansions.



Thermaltake's DH 101 Media PC Case

The CPU

Intel

Core2 Quad Processor Q9650 ~\$630

www.intel.ca

The brains in the operation, we're opting for a quad core CPU from Intel, the Q9650 with a 3 GHz clock speed, 12 MB L2 cache and 1333 Mhz bus speed. Built on the 45 nm process, the Q9650 packs a lot of punch on a small die. Packing so many transistors into such small architecture means a healthy speed boost but also, a lot of heat. A good CPU cooler will be a necessity.

With four cores, our CPU will be more than up for whatever tasks we can think to throw at it. With our ideal of recording from multiple sources at once and given that



we want to be able to render video quickly and smoothly, the Q9650 is a perfect — if pricey — CPU. We'll also be able to render or record video in the background while doing other computing tasks. An earlier generation CPU would be up to the task and would be an easy way to shave a few hundred dollars off the overall price tag but would sacrifice some of this performance.

The Motherboard

Intel

Media Series DG45ID ~\$145

www.intel.ca

For the sake of simplicity, we're opting for an Intel motherboard to go along with our Intel Core2 Quad processor. And a capable mobo it is. With HDMI- and DVI-out, the DG45ID is ready to hook up to an HDTV display or your standard computer monitor — or both. With six SATA ports, we'll have plenty of space for hard drives and optical drives along with some space for future expansion. Six USB ports plus six USB port headers (for front-mounted USB ports) means we'll have plenty of room to hook up all our digital and video cameras along with other peripherals like a printer, keyboard and mouse.

And as a part of Intel's Media Series of motherboards, it seems an ideal choice. That said, it is in miniATX format, which leaves us with fewer PCI and PCIe slots available for add-in cards. For expansion, we get one PCIe x16 graphics slot, two x1 PCIe expansion slots and a single PCI slot. Not a lot of room to grow but it should still be sufficient.

The integrated graphics solution on the DG45ID is capable of pushing full HD and beyond, up to 2,048 x 1,536 resolution. It also has native support for H.264, VC1 and MPEG2.

Four DDR2 DIMM slots allow for up to 8 GB of DDR2 RAM. We'll be opting for 4 GB in a 2 x 2 GB configuration, leaving two DIMMs open for expansion.

The on-board graphics solution and the fact that it's HD-ready means we could easily get away without using a discrete graphics card. We're adding one in though, which will allow our Media PC to play the latest games, though likely not with all the graphical eye candy turned on.

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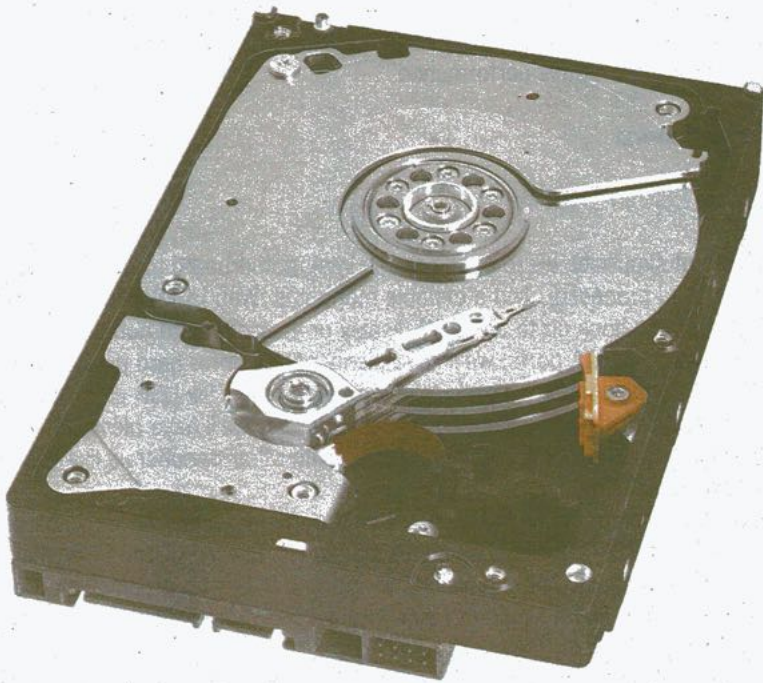
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The RAM

Kingston
KVR800D2N6K2/4G ~\$75
www.kingston.com

A tough choice, we ended up deciding to go with 4 GB of RAM from Kingston's Value RAM series. This 4 GB is spread across two 2 GB DIMMs, leaving us room to expand later up to 8 GB. Kingston's Value RAM series offers an excellent balance of price and performance, and with 4 GB of the 800 Mhz DDR2 RAM, our Media PC should perform well. Doubling the RAM later — a distinct possibility as more is always better — will mean another ~\$75 investment. This choice would serve as an inexpensive and easy upgrade that would provide immediate benefits.

The Tuner

Hauppauge
WinTV-HVR-950Q \$199 (part of Nero Liquid TV)
www.hauppauge.com

While there are internal solutions available, we're opting to use the WinTV-HVR-950Q USB stick TV and HDTV tuner from Hauppauge, included as part of the Nero Liquid TV suite. It's a good thing that the tuner is bundled with Liquid TV / TiVo PC as the WinTV software that ships with Hauppauge products is slow to tune in and far from the most user-friendly software out there.

Included with the bundle is an HDTV antenna for catching free-to-air HDTV broadcasts, an IR blaster for controlling a connected satellite or digital cable box, as well as a TiVo remote.

The Software

Nero
LiquidTV \$199
www.nero.ca

While our friends to the south were enjoying TiVo for several years before it finally arrived in Canada, Nero's LiquidTV / TiVo PC is launching at the same time both south and north of the 49th.

It's a compelling package: the excellent Nero LiquidTV software, a TV tuner, antenna, IR blaster and all the cables to hook it up in one box, along with a remote and a 1-year subscription to the TiVo service, including the extensive programming guides and scheduling it offers.

The beauty of having TiVo on your PC is that it's easier than ever to get TiVo'd content into other formats and transferred to different devices you own, from iPods or other video-capable digital audio players, to DVD or PSP. While it is possible to get content from a stand-alone TiVo box to your PC legally using TiVo's own software, it's far from a simple endeavour. Recording TiVo content directly to a PC hard drive eliminates the biggest and most problematic step involved: physically moving the content between the TiVo box and the PC.

The Storage

Western Digital
Caviar Black, 1 TB WD10000LSRTL ~\$240
www.westerndigital.com

Our case has three 3.5-inch drive bays (for hard drives) and one 5.25-inch bay for optical media. We're opting for a single 1 TB hard drive but that storage could easily be upgraded later.

The WD10000LSRTL (more easily referred to as the 1 TB Caviar which we'll do from here on) is a SATA drive, as are all modern hard drives on the market. We're opting for Western Digital here given the company's excellent reputation, extensive product line and low drive failure rates.

This is a 7,200 RPM drive with a 32 MB cache with a transfer rate of up to 3 Gbps. Since we'll be doing a lot of recording of live TV as well as transferring home videos to the Media PC (or rather, we would were it not being given away), storage capacity and transfer speed are of utmost importance. While opting for a solid-state drive (SSD) might be tempting given the super-fast access times they offer, the cost-per-GB is too high to be practical. And in a PC whose killer app is going to be recording and playing back TV broadcasts along with home movies, feature films and more, capacity is king.

The Media

Pioneer
4x Blu-ray DVD Burner BDR-202BK ~\$500
www.pioneer.com

Our Thermaltake case only has one 5.25" drive bay — the size required for an internal optical drive. So, we'll have to make sure that our optical drive is a do-it-all device.

We're opting for the Blu-ray burning Pioneer BDR-202BK which, in addition to being bleeding edge with its ability to read and write Blu-ray discs, can handle reading and writing to previous optical media too, specifically, DVD and CD. So in addition to being able to watch the latest Blu-ray movies on the big screen, we'll be able to take HD content straight from an HD-recording camcorder and burn it to disc for archival.

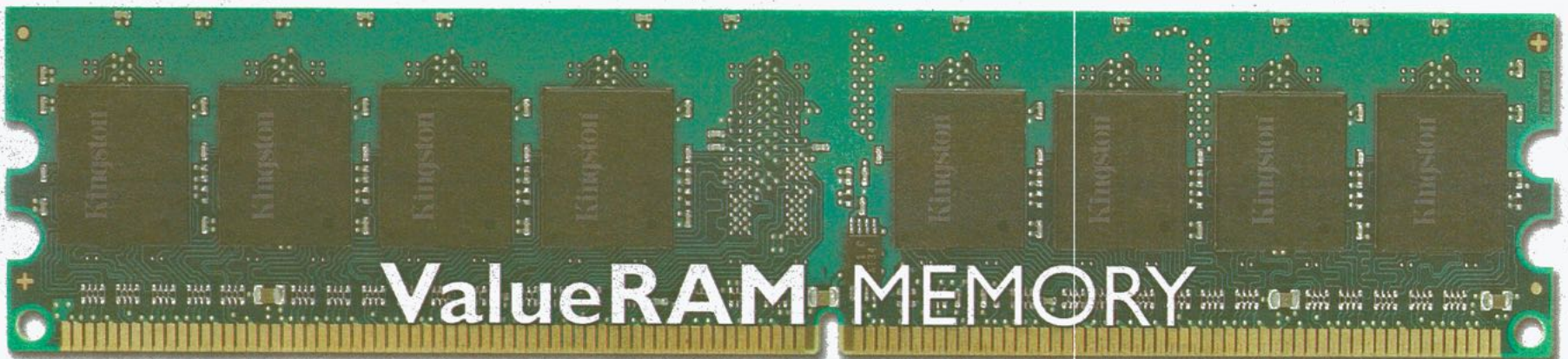
Likewise, we can take HD content recorded to our hard drive and burn off archived copies to Blu-ray discs. That means entire series of some TV shows on one disc. How's that for efficiency?

Coming up

Next month we'll detail the actual build process of our Ultimate Media PC. We'll also install all the requisite software and we'll report on the results of our benchmarking and testing. When that's all done we'll give the Ultimate Media PC away to one lucky reader.

Visit www.hubcanada.com for details and to submit your entry. And good luck!

By Andrew Moore-Crispin



The Online Photo Album

Finding a needle in the photo sharing haystack

There sure are a lot of photos online, don't ya think? Unless you've spent the last few years off planet, you know that the Net has become a huge repository for digital photographs. Flickr marked the two billionth photo posting more than a year ago. PhotoBucket's image counter is ticking away at over six billion images. This embarrassment of photographic riches can be a problem: How do you find exactly what you are interested in seeing?

At the most basic level every photo hosting site gives you a lot to choose from. Every time you go to your favourite photo site you'll find a fresh batch of images. No heavy lifting required — just click and enjoy. Most sites are designed to provide different images each time you visit and the randomness of presentation is also engaging — you never know what you might see from one session to the next.

Worth 1,000 (key)words

Sites also use non-structured keywording so you can pick virtually any descriptive word that pops into your head and use it to search for images: cities, countries, natural formations, colours, adjectives, months or common objects. The traditional photographic genres like landscape or black-and-white work too.

Sounds good so far, but because of the sheer volume of images being posted even the most (seemingly) unique or obscure keyword can produce hundreds or thousands of hits. To improve search success, you need to cast a net with a finer mesh and go beyond the simple keyword search.

Flickr favours the term "tag" instead of keyword, and on its site you can refine your searches by using tag clusters. Clusters are groups of tags that most often appear together. Implemented by Flickr a few years ago, clusters can refine searches, but can also take you off into a completely different direction. For example, one of the tags clustered around the primary tag "flower" is macro; if you follow macro, you can soon be looking at collections of close up photography

that have nothing to do with flowers.

Other developers have developed new ways to search on Flickr's tagging system. Tag Galaxy (taggalaxy.de) uses a solar system metaphor to visually refine search parameters. Typing in the tag "Canada" shows it as the central "planet" with smaller satellite tags with labels such as Toronto, lakes, BC, and so on orbiting it. Click on one of the satellites and it is promoted to the central body position around which other satellites orbit. Successively clicking on the satellites refines the search, but if you click on the central body the search refinement ends and the interface begins to populate the sphere with thumbnails. You can then spin the "planet" to see all the thumbnails of the search result.

One product of Flickr's data mining efforts is the term "interestingness." Flickr describes interestingness as "a ranking algorithm based on user behaviour around the photos." These could include factors such as the number of comments a photo receives, how many times it has been viewed or ranked as a favourite, etc.

From interestingness to searchability

Flickr Hive Mind (fiveprime.org/flickr_hvmnd.cgi) uses interestingness along with tags, tag pairs, groups, users and other data to mine interesting sets of images. When I typed in "bridges" Hive Mind searched Flickr using a number of tags such as HDR (high dynamic range) and architecture; tag pairs such as bridge+night; and a number of users who presumably had made some reference to bridges in their descriptions or comments. Hive Mind is just one of more than 100 tools that have been developed using Flickr's Application Programming Interface.

Other sites are also using social networking technology to refine searchability of images. Last year, for example, PhotoBucket added Digg-ability to its photos, and now its popular images page lists images having the most Digs.

While Yahoo-owned Flickr is today's dominant photo sharing site, Picasa, now owned by Google, is a

relatively new kid on the block. It has parlayed its photo album software into a photo sharing site. One of Picasa's recent developments is face-based tagging. The site uses clustering technology to group photos with similar faces. This allows you to batch name them rather than finding and naming them one at a time.

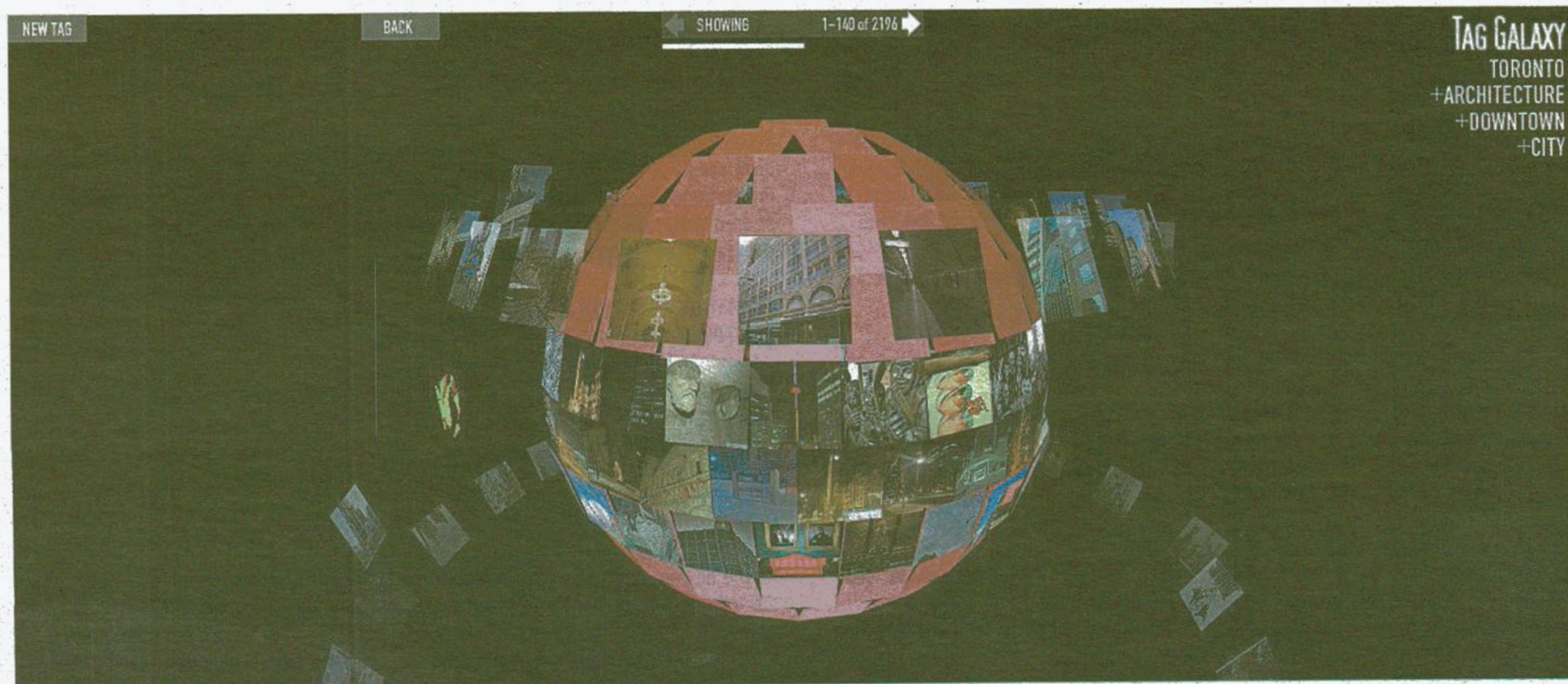
Leaving your prints behind

Google acquired another property called Panoramio, which specializes in geotagged photos. Geotagging has become its own special interest group on many photo sites. For photographers, it helps to write location information into the metadata fields of the images before uploading them to Panoramio — the database automatically scans the fields and maps the images, so uploading to the site isn't much different than uploading regular images. However, it's not essential. You can also geotag after the fact, if you happen to know the location coordinates for the photo, or if it is a landmark location that is easy to locate on a map, such as the CN Tower.

As you might expect, Panoramio uses Google Earth as its mapping engine, and so does Picasa. In addition to geotagged content, Picasa has a game on its home page called Where in the World? that makes good use of Google Earth. It's simple but addictive — random photos appear next to a map of the world and you have to guess where the photo was taken. Flickr has a huge store of geotagged photos and uses Yahoo Maps as the underlying mapping engine, but I've seen one developer who has figured out how to use Google Maps to map Flickr's geotagged images.

With Flickr and Panoramio, geotagged photos are presented differently — a map is the dominant feature with map pins or hot areas to indicate photos that can be viewed at various locations. However you can use the same search tools available in the rest of the site, from simple tags to data mining systems in order to find images.

By David Tanaka



In the Lab: Web Browsers

Browsing for the best of the Net

The web has become ubiquitous. So much so that we may not even think about how we go about accessing it. Since virtually all PCs come preinstalled with Windows and therefore Internet Explorer, it's easy to ignore the fact that there are other viable alternative web browsers available.

Web browsers such as Safari have been available for years on the Mac, but only a short time on the PC. At the same time, browsers such as Mozilla Firefox have established themselves on both Macs and PCs and Google's Chrome browser which was released only a couple of months back has a Mac OSX version in the works as well.

This month In the Lab, we are going to test out some of those other browsers — and Internet Explorer, too — to see how they stack up against each other. We'll be focusing on overall usability; security, while an important issue, has been covered previously in HUB and won't be touched in this article.

The browsers will be tested for their ease of use, features and reliability among other things, and will also be put through a simple Java speed test.

This test was found on a website (celtickane.com/webdesign/jsspeed.php) where a simple Java button is set up and various data is collected, most importantly the duration of the test. I took ten tries with each browser after freshly opening them and found the average speed.

There are also results given there, which you may compare with my results, or even your own if you're so inclined.

Internet Explorer (v7.0.5730.13)

Available on: Windows XP SP2 and up (IE 7.0)

Selling point: The first web browser most will lay hands on

Pros:

The default web browser of Windows PCs

Cons:

Proprietary to Windows

World's most commonly used browser

Version 7 demands Windows XP SP2 or higher

Web developers generally develop for IE standards

Internet Explorer and Windows are practically joined at the coding hip

Anyone who has used Windows has probably used Internet Explorer (IE). Simply put, it is the browser to beat. Although there are other options for PC users now — thankfully, some might say — IE remains the default web browser for any and all PCs that come with Windows. Because of this, most computer users have had at least some experience with IE, possibly before switching to something different. Regardless, everyone knows what IE is, what it looks like, and some of the basics of what it does, and it therefore deserves some points for being the most widely used web browser in the world.

Produced and developed by Microsoft, IE first came out in 1995 shortly after Netscape Navigator arrived on the scene. The simultaneous presence of these two browsers caused the browser wars of the late '90s, which IE eventually won.

IE 7 is the current version, has seen a decline in overall user base over the past years and has alienated some users by being compatible only with the Windows OS, and, more specifically, only with Windows XP Service Pack 2 and up. Also, there have been reports of instability in the new IE which has proven most reliable with Windows Vista.

Despite those criticisms, Internet Explorer has improved its overall usability in recent times, with version 7 adding tabbed browsing and an RSS reader, two features that were sorely lacking in previous versions.

IE is not friendly toward customization, either for moving the essential buttons on the toolbar around or for installing plugins.

Accessing browsing history and favourites is similar to previous versions and clearing Internet history is as easy as clicking the first option under Tools.

Opening four tabs in IE (Hotmail, HubCanada, eBay, and Yahoo.ca) took up about 85 MB of memory, which is about average.

Java speed test: 1646.6 ms (avg)

It's a well known fact that IE has trouble with Java. Whether it's a business decision or a lack of foresight, this browser has largely neglected Java. Still, more than a second and a half to pass this test makes IE the slowest browser by more than four times. Ouch.

Firefox (v3.0.3)

Available on: Windows, Mac OSX, Linux, Unix derivatives

Selling point: Customizability, plugins

Pros:

Open source

Cons:

The sheer number of add-ons can be daunting

Resource intensive

Thousands of add-ons available

Supported by many OS

Originally built on Netscape Navigator code after it went open source, Mozilla Firefox (which is also open source) is now the second most popular web browser in the world. In addition, the release of Firefox 3 was met with more than 8 million downloads the day it was released, which set a Guinness World Record.

If that doesn't speak to its growing popularity then perhaps the sheer volume of add-ons, plugins, and other modifiers will. New ways of customizing Firefox are coming out all the time from sources all over the world, making it one of the easiest browsers to tailor to your specific needs. This is undeniably Firefox's strongest selling point.

Simply go to Tools and click Add-ons and you will get a list of suggested plugins that you can install directly into Firefox. And if you decide you don't like one of them after using, just click either disable to temporarily turn the extension off, or choose uninstall to remove it completely. It's as easy as that.

Once a new plugin is installed it will modify some aspect of your browsing experience after a browser restart — which is unobtrusive as Firefox can easily restore browsing sessions. This modification can range from something simple like Speed Dial, which you can use to turn your home page into a quicklist of frequently visited websites for convenient browsing, to plugins that allow users to navigate through Firefox by using "gestures," mouse movements that function as hotkeys (a la Black and White, if you remember that game).

Firefox also works on a wide range of OSs, from Windows and Mac OSX to a variety of Linux versions.

Firefox 3 also added a searchable and predictive address bar. Type in a few letters found in a site in your history and you can select it in the address bar (hit H for hotmail, etc.) saving time without needing a plugin. Also typing in phrases or words will initiate a Google search, which is convenient.

Yet despite these strong points, even Firefox is not without flaws. For one thing, Firefox is even more resource intensive than IE. When testing the browser with the four tabs loaded to the previously mentioned test pages, Firefox was using up just under 100 MB of memory. That's a lot, and that number could easily go up with more tabs or, presumably, with more extensions.

Also, the sheer number of plugins and such make it somewhat daunting to initiate the whole customization of Firefox, and can get a little out of hand. However, too many options is better than having none at all.

Java speed test: 359.8 ms (avg)

Pretty good, especially when compared to IE. In fact, only one browser, Opera, scored better on the Java speed test. However, it was roughly 12 per cent faster on average than Chrome or Safari.

Chrome (v0.2.149.30)

Available on: Windows XP SP2 and up

Selling point: Lean, light, and simple

Pros:

Integration with online apps like Google Docs

Incognito browsing for a non-logged session

Uncluttered interface

Cons:

Windows only

Feature-anemic

Scary terms of use

As the newest addition to this battle of the browsers, Chrome, which was put out by the folks at Google not three months ago, has already gained some fans for its novel approach to browsing. Even more simple in interface than Safari, the open source Chrome's minimalist approach eschews even a Menu bar — although some of the

more essential tools are available by clicking on the wrench button to the right of the address field. This grants access to the bookmarks and history as well as downloads.

Chrome also showed less stress on the memory when the browser was tested on the four test sites. With four tabs in one window Chrome took up roughly 62 MB of memory, more than 20 MB less than IE, and almost 40 MB less than Firefox. It also seemed to do so in four separate tasks as shown in task manager. This would be due to the safeguarding technology known as "sandboxing" that Chrome employs. What this does is it keeps the resources for each tab separate in case of a fatal error, so if one tab goes down, the whole browser doesn't fall apart as is the case with its competitors whether one is browsing in multiple tabs or multiple windows.

A unique feature offered by Chrome is its integration with online apps. Within the limited menu options is an entry that lets users create desktop, start menu or quick launch shortcuts to online applications. This feature is designed to bridge the gap between online and offline apps.

While early adopters of Google's Chrome browser were required to [from the end user license agreement (EULA)] "give Google a perpetual, irrevocable, worldwide, royalty-free, and nonexclusive license to reproduce, adapt, modify, translate, publish, publicly perform, publicly display and distribute any Content which you submit, post or display on or through, the Services," this was apparently an oversight. A subsequent update of the EULA has removed this sentence, making the browser much more palatable.

Java speed test: 390.2 ms (avg)

This is an acceptable speed, although not an ideal one. Coming in at the slow end of the four browsers that didn't take an entire second and a half to pass the Java test, Chrome is slightly faster than Safari, but more than fifteen per cent slower than top-ranked Opera.

Safari (v3.1.2 (525.21))

Available on: Windows, Mac OSX

Selling point: The Mac's default

Pros:

Simple and efficient by default

Add-ons enable customizability

Developed by Apple, ideal for Mac

Cons:

Many plug-ins aren't Windows compatible

Lack of predictive address bar

Shortcuts common to other browsers don't apply

The Safari browser should be the one most familiar to Mac users, and, conversely, least familiar for Windows users. That's because Apple's proprietary browser only made its debut on Windows PCs in June of last year, controversially bundled with the PC version of iTunes. It was only released in a stable PC version in March of this year and has yet to gain significant traction in the PC world. Since its introduction in early 2003, Safari replaced Netscape Navigator as the Mac's default browser.

The default interface is simple and straightforward. The toolbar at the top has the expected standard buttons (File, edit, view, history, bookmarks, etc.) and the initial layout has a sleek and simple slate grey colour scheme.

However, that isn't necessarily the layout you need to stick with. Safari has its own plugins and add-ons you can install if you wish, many of which can be found at PimpmySafari.com. Unfortunately, the majority of these will only work on Macs at the moment.

There are many different add-ons that give Safari the abilities of other browsers and compensate for its weaknesses (making searchable address bars, history, etc.) but as far as Windows users are concerned, Safari is pretty bland and bare-bones. For Mac users I'm sure there's more to it but the Windows version is severely limited.

Safari does have a couple of things going for it though. With a built-in RSS feeder, spell checker, and a resizable search bar, there are a few features that Safari has going for it by default. The address bar also doubles as a fairly accurate loading bar, if that helps.

Safari also took up around 75 MB of memory with the four test tabs open. That

makes it the second best in terms of efficiency, next to Chrome. Not bad, but I suppose if your Safari were totally "pimped," you might get some different numbers.

Java speed test: 400 ms (avg)

Clocking in at 400 ms, Safari is the second slowest browser to take the Java speed test. With Opera managing to come in at around 330 ms, that means that Safari is 17 per cent slower. On the other hand, it's more than four times as fast as IE.

Opera (v9.60)

Available on: Windows, Mac OSX, Linux

Selling point: Speed and customizability

Pros:

One of the oldest browsers

Lots of room for customization

Faster than most

Cons:

Some compatibility problems reported

Killer features have been usurped by other browsers

Opera is one of the oldest web browsers around, and has made a lot of progress over the years. Originally, Opera was not free software, and was only available on trial periods. It then progressed to being ad-driven, and now is completely free.

While it may sound a little strange nowadays to have a browser that one has to pay for to use, there were reasons behind this. For one thing, Opera was the first browser to offer tabbed browsing. Now a feature that is barely worth mentioning — all of the browsers in this article have it — tabbed browsing was revolutionary when it first came out, as were many of the other features in Opera.

Opera also had plugins before Firefox, although Firefox surely has more plugins now.

The thing is, some of the features that you can put into Firefox with add-ons are already ingrained into Opera by default; the two examples of plugins that I gave — Speed Dial and gestures — are available right after installing.

Another feature that Firefox borrowed from Opera is session restores. Whenever Opera is closed, the browser will automatically reopen all of the tabs that you were previously working on along with their contents. Any password-encrypted sites, however, will require you to log back in.

Opera has a handy Panels button to the left of the tabs line, which users may click to access other built-in features. These range from the expected to the innovative, from favourites and history to notes and widgets. Widgets are extra feature-specific windows that users can download in order to be more productive, or possibly less — (SimAquarium is a prime example of the latter).

Opera took up about 90 MB of memory with the four test pages open in tabs, which is better than Firefox, but nowhere near as good as Chrome. Still, the fact that Opera is feature rich might have something to do with that, considering all of the things that you can do with it before even installing any add-ons.

Java speed test: 331.6 ms (avg.)

As the fastest browser tested against the Java test, Opera deserves a good tip of the hat. With all of those aforementioned features and potential plugins, the browser still manages to achieve its goal of combining speed and usability. It also, conversely, manages to give a stern wag of the finger to IE, which it thoroughly thrumps by being almost five times faster.

Conclusion

While it may be hard or even impossible to pick the "best" of these browsers, each performs differently and has a variety of different features that separates it from the rest of the pack. Depending on your purposes, you may find that you like Firefox for its extensions, or Chrome for its open source nature, or Internet Explorer for its ubiquitous presence.

Our advice is to try the different options out until you find the one that best suits your needs.

By Dorian Nicholson



Gigabyte GA-MA790GP-DS4H

Proving that AMD still has muscle to flex

GA-MA790GP-DS4H motherboard

Gigabyte ~\$179 www.giga-byte.com

Pros:

Great Integrated graphics performance
Hybrid and CrossFireX support
Decent price

Cons:

No DDR3 version
Current AMD CPUs are slightly less powerful than Intel's

Ever since the introduction of the Core Duo, Intel has been steadily eating away at the ground AMD worked so hard to gain with their Athlon line of processors. It's a shame, too, because it's not that AMD's latest Phenom processors aren't decent enough but rather that Intel has really stepped up its game. Luckily AMD has continued to fight the good fight, releasing plenty of intriguing products in order to lure back all those Athlon XP users of a few years ago.

Ironically, in the chipset department AMD has experienced quite a bit of growth in the past couple of years due to its acquisition of graphics chip designer, ATI. It's no surprise that their integrated graphics solutions are some of the best available and are also offered at surprisingly competitive prices. As you'll find out in this review of Gigabyte's GA-MA790GP-DS4H, their latest 790GX chipset is no exception.

The graphics in the 790GX

At the heart of the MA790GP-DS4H is the 790GX northbridge, whose claim to fame is an integrated DirectX10, Shader Model 4.0 capable Radeon HD3300. The Radeon HD3300 is trumped only by the lengths at which Gigabyte has stretched the GPU to reach its maximum potential. This is the first integrated graphics processor I have seen that has not only a standard 15-pin VGA and DVI connector but also has an HDMI port built directly into the motherboard's rear I/O panel (our *Ultimate Media PC motherboard*, the *Intel DG45ID* features a similar HDMI port, though they are rare. — ed). Gigabyte has gone ahead and made sure the connector itself adheres to the latest HDMI 1.3 certification in order to deliver the highest available digital audio and video signal as well.

The MA790GP-DS4H is compatible with two different multi-GPU graphics card configurations by delivering both ATI's Hybrid Graphics and traditional CrossfireX support. Hybrid Graphics is essentially a CrossFire setup that utilizes the onboard Radeon HD3300 as one of the two cards in the setup. If, of course, you'd rather have the best of the best, there are also two full-sized, PCIe 2.0 x16 slots on the motherboard as well. This makes upgrading from entry-level all the way up to ultra-high-end feasible on the MA790GP-DS4H — everything from using the included IGP, to having two 4870 X2s (for nearly five teraflops of graphics-pushing power) is possible.

Another cool graphics-related feature of the MA790GP-DS4H is the inclusion of 128 MB of blazingly fast 1333 MHz DDR3 used as SidePort memory. Whereas most integrated graphics solutions borrow memory from the system RAM (often referred to as "shared memory" and is usually adjustable in the BIOS), Gigabyte has decided to use this additional 128 MB to try and eliminate the memory bottleneck associated with sharing slower system RAM. With this SidePort memory, the integrated graphics

performance gets an increase of as much as 10 per cent, further stretching the gap between competitors' onboard graphics offerings.

Rounding out the set

Joining AMD's 790GX northbridge is their equally outgoing SB750 southbridge. Typically the southbridge is responsible for all of the I/O functions of the chipset — the slower PCIe lanes, SATA ports, integrated audio, networking, the USB and FireWire ports, etc.

In the past, AMD's southbridges were, for lack of a better word, weak. Compromises were made that the other chipset manufacturers had no problems achieving, which put AMD at a disadvantage. Fortunately the SB750 has everything we've come to expect from a chipset released this cycle, so when buddied-up with the 790GX the two make quite a team.

Aside from all the major mainstays like 12 USB 2.0 ports, six SATA ports, a FireWire Port and ALC889A HD audio codec, the SB750 is poised to give AMD's Phenom processors an additional overclocking boost (if you choose to overclock, that is). Included in the southbridge is AMD's Embedded Controller for AMD OverDrive and Advanced Clock Calibration (thankfully dubbed EC-AOD-ACC).

Maximum OverDrive

Linking up with the SB750's EC-AOD-ACC is AMD's OverDrive software. This software suite can be accessed through the OS to not only overclock with the click of a mouse, but also to monitor all of your system's settings (voltages, temperatures, etc). They've also included an automated stress testing application to ensure system stability when tweaking.

The OverDrive software is so straightforward that it seems as if AMD is trying to make a point of being overclocker friendly... In fact, I'm almost convinced that AMD is encouraging users to try tweaking their system as the software is easy enough for even entry-level users to understand and use.

Not to be outdone by AMD, Gigabyte has also put their own personal spin on the GA-MA790GP-DS4H. The wonderful Ultra Durable 2 makes its return, so the improvements made to the SB750 southbridge for stability are compounded further with all-solid capacitors and sturdy design. Gigabyte has also gone along and attached all-copper passive heatsinks to cool potentially vulnerable components. The intention of Ultra Durable 2 is to increase system stability and component longevity in even the most grueling conditions.

The Gigabyte touch

Gigabyte's DualBIOS has also been added to the MA790GP-DS4H, so you needn't fear a failed flash attempt. Generally speaking the average user won't update their BIOS since an improper flash will leave you with a dead motherboard. But with DualBIOS you have no need to worry as there are two physically separate BIOS chips on the motherboard. If one craps out the other automatically kicks in, avoiding the catastrophe altogether.

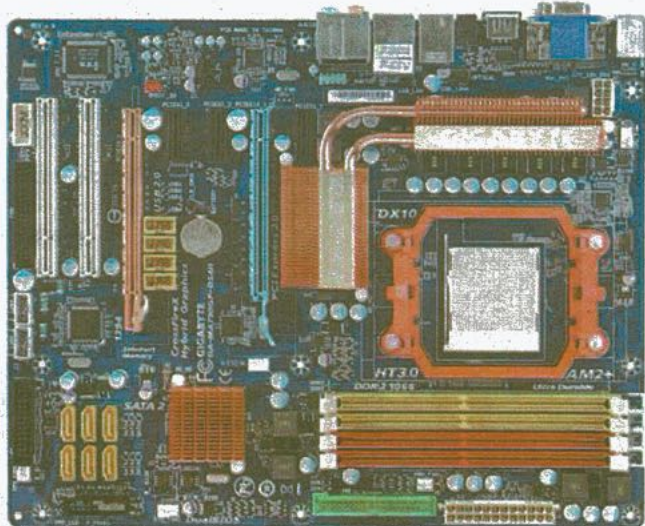
Another perk that Gigabyte threw in was high quality audio in the form of Dolby Home Theatre with support for 7.1 audio channels as well as two additional independent stereo channels. Not only is the audio quality better than the standard, but Dolby Home Theatre certification requires that the device completely supports Blu-ray lossless audio as well. When you consider the motherboard's built-in HDMI port, the MA790GP-DS4H could make for one heck of a home theatre PC.

Conclusion

Supporting all AM2 and AM2+ processors (even up to a whopping 140 watts), having Hypertransport 3.0, and support for DD2 1066 MHz (1333 MHz unofficially) means the Gigabyte GA-MA790GP-DS4H should be a viable option for quite a while. Tack on the incredible room for graphics card expandability and this board has quite a bit of futureproofing up its sleeve. With that said, the board's highlight feature, its integrated graphics, is currently the best available, so if you choose to go without discrete graphics hardware you'll still be able to play the latest HD multimedia and games. The GA-MA790GP-DS4H is another reason why we shouldn't completely count out AMD.

By Mike Palermo

Gigabyte GA-MA790GP-DS4H



Industry Giant Goes Light-Weight

Dell's Inspiron Mini 9 marks the company's first foray into netbooks

Inspiron Mini 9

Dell \$359 - \$569 Price as tested: \$ 569 www.dell.ca

Specs as tested:

Intel Atom N270 1.6 GHz / 533 Mhz FSB processor
Windows XP Home Edition
1.3 MP webcam
1 GB DDR2 SDRAM 800 Mhz
16 GB SSD hard drive
Bluetooth 2.1
802.11g Wi-Fi
4-cell battery

Pros:

Sleek case styling
4-cell battery for ~3.5 hrs uptime
Highly configurable

Cons:

Only two colours available
Strange keyboard layout and dead space
Can be expensive

The latest to jump into the netbook fray, desktop and laptop giant Dell recently released its Inspiron Mini 9.

Some of the bigger manufacturers are steering clear of the netbook category — we can only assume because the profit margins are so low that the manufacturers don't want to cut the bottom out of their existing notebook sales — so it's interesting to see one of the bigger players stepping up. With that said and given some of Michael Dell's recent comments about the 30-minute computing limit for netbooks, the Dell Inspiron Mini 9 does feel a bit like a "me too" product offering that doesn't bring anything truly unique to the table.

Configuration nation

At the upper end of the Mini Inspiron spectrum, a top of the line configured Inspiron Mini 9 with Bluetooth 2.1 capability, 1 GB of RAM, a 1.3 MP webcam and 16 GB solid state hard drive costs \$569. As the sub-\$700 laptop article by Chad Sapieha that appeared in our October issue attests, when you start nearing the \$600 mark the value proposition of a netbook becomes fuzzy.

The case against a top-of-the-line Inspiron Mini 9 as we tested comes when you do

the cost-benefit analysis. Sure, it's light at just a hair over 1 kg and could still be considered relatively inexpensive. It has a decent battery life with the 4-cell battery offering about 3.5 hours and looks slick. However, for \$70 less, you could opt for the Dell Inspiron 1525 offering a CD burner / DVD reader, full-sized keyboard and a 15.4-inch screen. Still, the Inspiron 1525 offers a paltry single core processor and 1 GB of RAM, and so suffers under the weight of its charge, Windows Vista Home Basic. It also clocks in at 2.7 Kg.

Lower down the price spectrum are the Inspiron Mini 9 netbooks running Ubuntu, which start at \$359. However, at this bargain price, you'll have to do without a webcam (0.3 and 1.3 MP cams are \$20 and \$40 options, respectively), you'll be stuck with 512 MB RAM (1 GB is \$30 more), a 4 GB SSD HDD (8 GB and 16 GB are \$30 and \$70 respectively). Add in any of the other options and the price tag creeps ever upward, tempting though some of these options may be.

The user experience

Our tester notebook ran smoothly; its 1 GB of RAM and 1.6 GHz Intel Atom processor are more than up to the task of running Microsoft Windows XP Professional. We also like the 8.9-inch screen, sleek rounded edges, comfortable keyboard and excellent mouse track pad with left and right click buttons positioned below the track pad as opposed to mounted on the left and right, as has become increasingly common in netbooks.

However, the bottom-mounted click buttons and near standard-sized keys of the Inspiron Mini 9 come at a cost. Most notable is the fact that the keyboard sacrifices dedicated function (F1 to F12) keys. Perhaps not a major deterrent for some users, but this user has grown accustomed to using the function keys and the shortcuts they provide.

Instead of doing away with these keys entirely, the function keys are secondary positions on the ASDF keyboard row, disposing of the F11 and F12 keys entirely. Given the dead space at the top of the machine taken up by the flat battery that slots in above the keyboard, I would much rather have seen a compromise struck. They could have opted for a rounded battery pack, as seen in other netbooks like Acers' excellent Aspire One and category creator ASUS' Eee PC line.

On the left side of the Inspiron Mini 9 is an SD/MMC/MS card slot, two USB ports and the power input. On the right side are the headphone and mic inputs, one USB port, VGA out and Ethernet.

We managed to get over three hours of use out of the 4-cell battery with wireless on and we can expect to see an extended life battery before too long. No word on cost though. With three plus hours of battery use, the Inspiron Mini 9 bests many of its competitors, most of which use a 3-cell battery pack in the base configuration and generally offer just over two hours of use.

Deal or no deal?

While a top end Inspiron Mini 9 clocks in at almost \$600, a configured option using Ubuntu as the operating system, opting for 512 MB RAM, accepting the smaller solid state hard drive, and doing away with options like Bluetooth 2.1 and a webcam and the price comes more in line with the competition at around \$350. The fact that it offers some configuration options puts it ahead of the competition in customizability.

If you have stock in Dell, if you have traditionally liked their products, if you want to have some control over how your netbook is put together or if you specifically need left and right click buttons mounted below the mouse trackpad and can sacrifice on keyboard layout, the Inspiron Mini 9 may be just the thing.

The fashion-conscious computing set will need to see more than the black and white case colours before considering the Inspiron Mini 9 as a serious contender though.

For what it's worth, I'll be sticking with the Acer Aspire One I purchased recently.

By Andrew Moore-Crispin



Dell Inspiron Mini 9

Power Pellets: Top 10 PC Game Studios

These development companies hold the fragile future of PC gaming in their collective hands

The PC used to be the platform of choice for players interested in experiencing the latest and most advanced role-playing games, first-person shooters, and real-time strategy games.

However, the last decade has seen a steady stream of talented PC game development studios redistributing their talents and energies to the world of console gaming.

While companies like BioWare (Neverwinter Nights), Epic Games (Unreal), and DICE (Battlefield) continue to make PC titles, their focus has undeniably shifted toward the more lucrative Xbox 360 and PlayStation 3 markets.

But it isn't all doom and gloom for hardcore PC gamers. There are several developers that remain quite dedicated to the Windows platform. Ten of them are listed below, along with the means by which they will contribute to the PC gaming industry in the near future.

Blizzard Entertainment

What they've done: The Diablo games, StarCraft, World of Warcraft

What they're doing: Developing Diablo 3, StarCraft 2, content for World of Warcraft
Not much explanation required here. Blizzard made one of the most profitable PC video games of all time in making World of Warcraft. What's more, they remain completely focused on PC gaming. Legions of players are dying to get their fingers on the latest Windows-exclusive Diablo and StarCraft games.

Gas Powered Games

What they've done: The Dungeon Siege series, Supreme Commander

What they're doing: Creating new PC-exclusive games Space Siege and Demigod
Gas Powered Games' epic Dungeon Siege RPGs have proven worthy competition to Diablo in the dungeon crawling category, but the Redmond-based studio is branching out with the upcoming PC-only games Space Siege (a sci-fi themed action RPG) and Demigod (an RPG/RTS hybrid).

A.C.E.S. (subdivision of Microsoft Game Studios)

What they've done: The Microsoft Flight Simulator games

What they're doing: Developing MSFS 11

Among the longest running active game franchises (the first edition was made back in 1977), the Flight Simulator games have a massive global following, a magazine dedicated to the franchise, and scores of developers creating new add-on content. As long as the Windows platform exists, new Flight Simulator games will be made.

Crytek

What they've done: Far Cry, Crysis, the CryENGINEs

What they're doing: Marketing CryENGINE 2

Crytek has carved out a reputation for creating the most technologically sophisticated games around, but their main contribution to PC gaming has been the



CryENGINE, the software that churns out the amazing graphics seen in their games. Crytek is currently trying to license CryENGINE 2 — which powers the acclaimed Crysis franchise — to other developers.

The Creative Assembly

What they've done: The Total War games

What they're doing: Developing Empire: Total War, Stormrise

This U.K.-based studio has used its Total War franchise to deliver some of the most epic and compelling real-time strategy games of the last decade, and will soon be adding a fresh entry in the form of the American revolution-themed Empire: Total War, which is set for release early next year. Also watch for Stormrise, an original post-apocalyptic RTS game.

Firaxis Games

What they've done: Anything preceded by Sid Meier's name

What they're doing: It's unknown for now, but Civilization V is a pretty good bet. Firaxis has dabbled in console gaming over the years, but they always come back to Windows — and with good reason. The PC is still the only platform that facilitates the sort of sophisticated but accessible interface necessary to let players dig deeply into Firaxis' particular brand of turn-based strategy.

Valve Corp.

What they've done: The Half-Life games, the Steam digital distribution platform

What they're doing: Refining Steam, creating a new Half-Life 2 episode

Nowadays, Valve releases most of their games on consoles as well as PC. However, the company's real value to the PC gaming community is Steam, a digital distribution system that hosts 440 games, has some 15 million active users, and was recently rumoured to have caught a longing gaze from Google.

Maxis Software

What they've done: The Sims games, Spore

What they're doing: Developing supplementary content for Spore

The Sims games are second only to Nintendo's Mario games in total number of franchise units sold, and they're still going strong. However, the recently released evolution simulator Spore — which happens to be PC-only (not counting a dumbed-down version available for the Nintendo DS) — has given the company's brass a new focus.

Turbine Inc.

What they've done: Dungeons & Dragons Online, The Lord of the Rings Online, the Asheron's Call games

What they're doing: Developing new content for Lord of the Rings Online

With three successful MMORPG franchises under their belts, Turbine is a force to be reckoned with in online gaming. Their titles may not have the same user base as World of Warcraft, but they're nonetheless quite polished and critically adored. Mines of Moria, a new expansion to Lord of the Rings Online, is set to hit shelves Nov. 18.

Relic Entertainment

What they've done: Warhammer 40,000: Dawn of War, Company of Heroes

What they're doing: Developing Warhammer 40,000: Dawn of War 2, Company of Heroes Online

A THQ subsidiary based in Vancouver, Relic delivered one of the most engaging action/strategy games in recent years in the WWII-themed Company of Heroes. They're currently working on an online edition for the booming Asian market, as well as a sequel to the successful Warhammer series of sci-fi RTS games.

By Chad Sapieha

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The Last Byte

The Social Net @ work



Facebook as a business app? What next, Macs on the corporate desktop?

I jest of course; both are today's realities — not necessarily mainstream but realities nonetheless. The Social Net is dressing up for work.

If you look at the recent elections here and in the US, you'll see the footprint of social networking everywhere. Candidates without blogs risk being perceived as "out of it."

Yet sometimes it backfires, as when a couple of candidates in Canada dropped out because of inflammatory blog posts they made a year

or two earlier. Oops. Agenda item for the next caucus meeting: On the Net, smart-ass vitriol lasts forever.

South of the border headlines tittered that the Obama people Twittered — a sure sign that they were "with it." And everywhere, YouTube was both political stump and parody extraordinaire.

As an event concentrated in time, the elections provide lab-like conditions to study the impact of social networking on stimulating discussion as well as influencing and tracking opinion. There will no doubt be many doctoral theses written on the impact of the blog sphere on the 2008 elections or other Web 2.0 illuminations on the entrails of the elections past.

In business the short-term intensity of an election campaign is missing, but companies are attracted to these new technologies for many of the same reasons: targeted impact. It's the new sign of business savvy to have execs post blogs on the corporate website or to pitch on YouTube.

At the beginning of October the Conference Board of Canada announced its report on business and the Social Net. In *Customers and the Web: Web-Based Solutions That Improve Customer Acquisition, Loyalty and Retention*, the Conference Board presents five web-based strategies for improving the stickiness between companies and their customers.

The magic five on the Conference Board list are blogging, podcast and webcast-

based marketing, mobile (smartphone) marketing, social networking sites and direct-to-purchaser news releases.

What the board is underlining is something some businesses have already understood and implemented. As a tech writer I get a steady stream of e-mail from businesses inviting me to taste this or that new service they provide on the Net. Being also involved in publishing, I have a higher interest in blurbs related to that industry. Book publisher O'Reilly comes to mind as a paper-bound company that has transformed itself and is now fully engaged on the Net.

Sure you can buy books online from O'Reilly's site, but that's not necessarily the most compelling draw, nor the biggest potential revenue stream. O'Reilly's tech books, such as the *In a Nutshell* series are popular and cover a broad range of subjects.

But rather than just selling the books, O'Reilly allows you to access them through a fee-based service called Safari Books Online. The company's School of Technology offers self-paced courses with credit towards a certificate from the University of Illinois that further support its book business.

O'Reilly has also moved into the tech conference business, hosting conferences on many technology topics that cover the same subjects as the books they sell, including the Web 2.0 conferences since 2004. (O'Reilly Media Inc. CEO Tim O'Reilly is also often credited with introducing the term Web 2.0)

OK, I don't want to turn this into a shill for O'Reilly, but I know people working in other book publishing companies and their play towards this online ecology and digital economy are nowhere near as evolved.

It's a common problem with all businesses whose playing field has been turned upside down because of the force of the Net. If you look at the Conference Board's five web-based strategies you'll see commonalities with the things that O'Reilly has implemented.

Some will get it and grow, some won't.

Until next time,
David Tanaka

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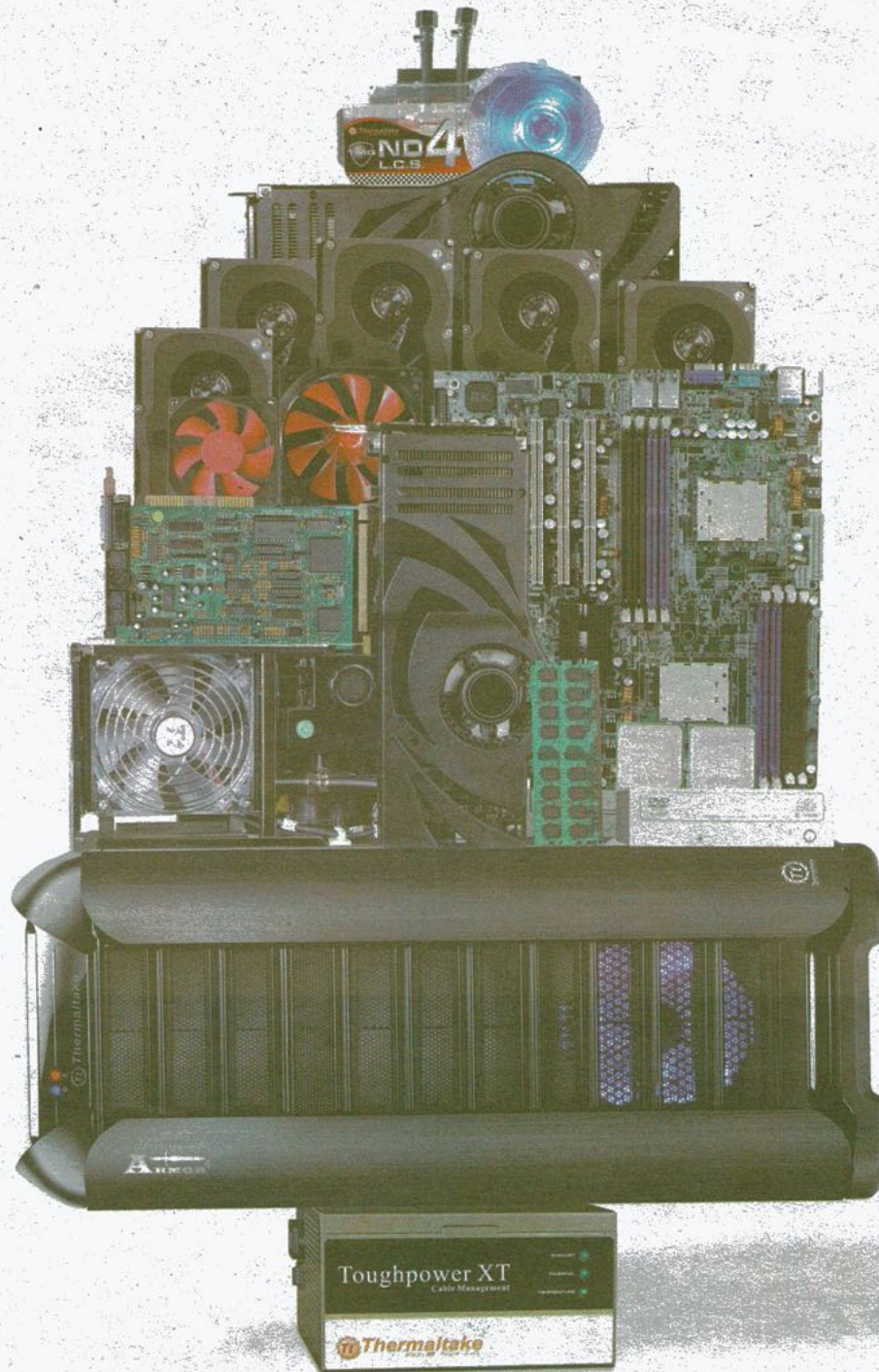
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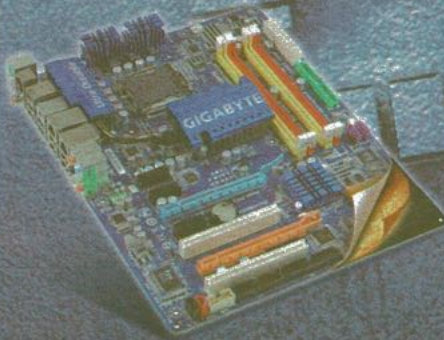
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Copper Inner layer

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Copper Inner layer

PCB layer cross-section image, magnified 200x



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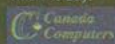
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